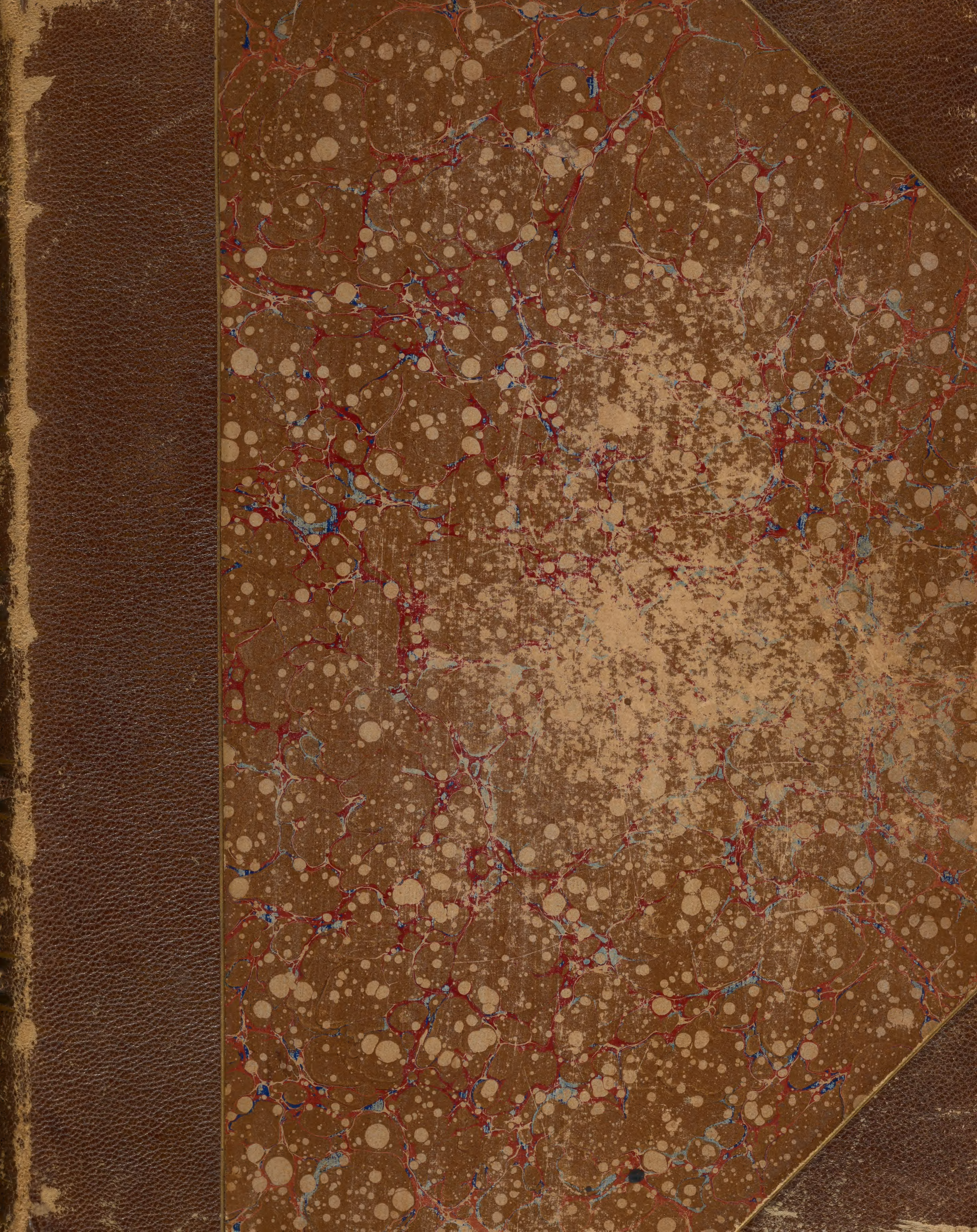
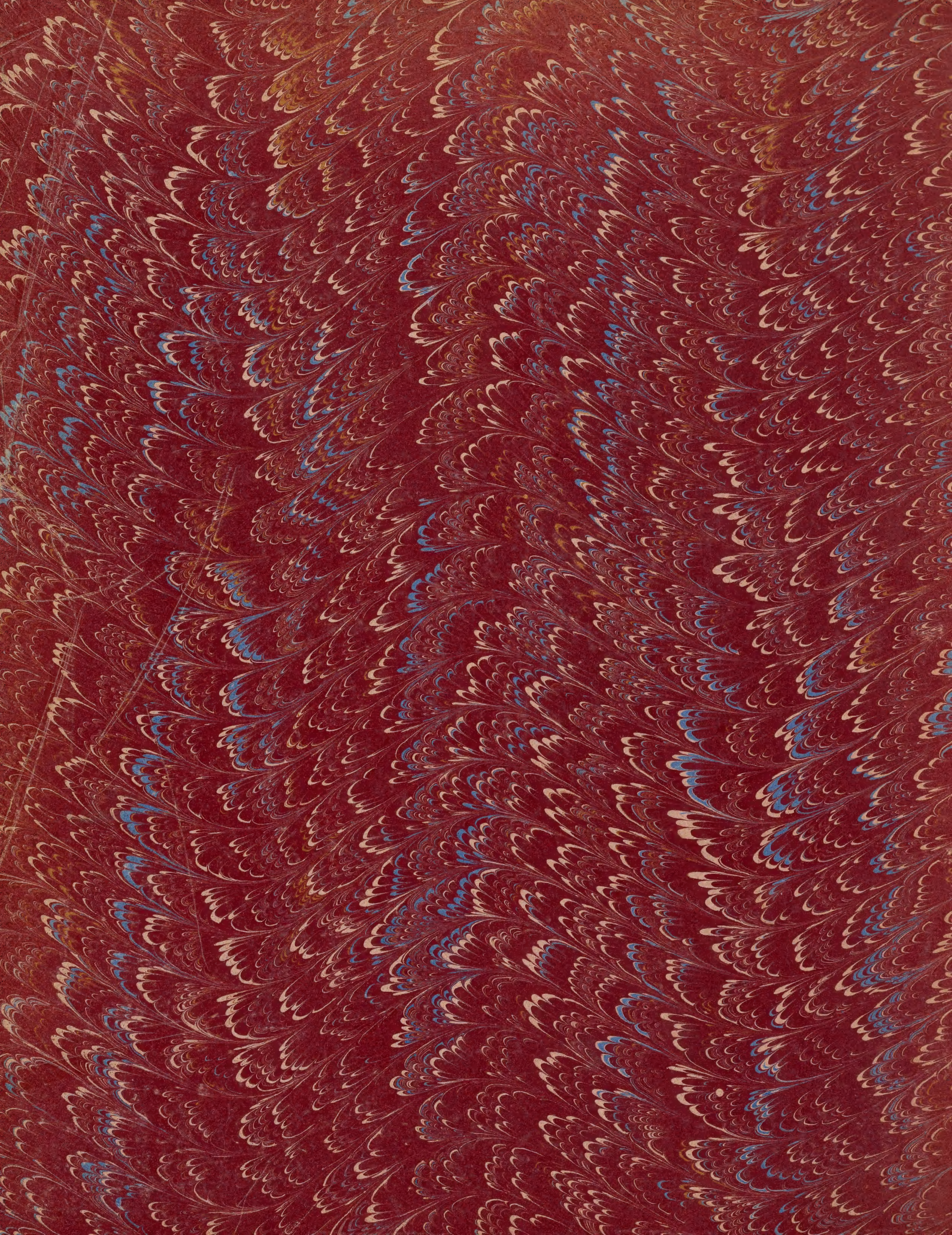
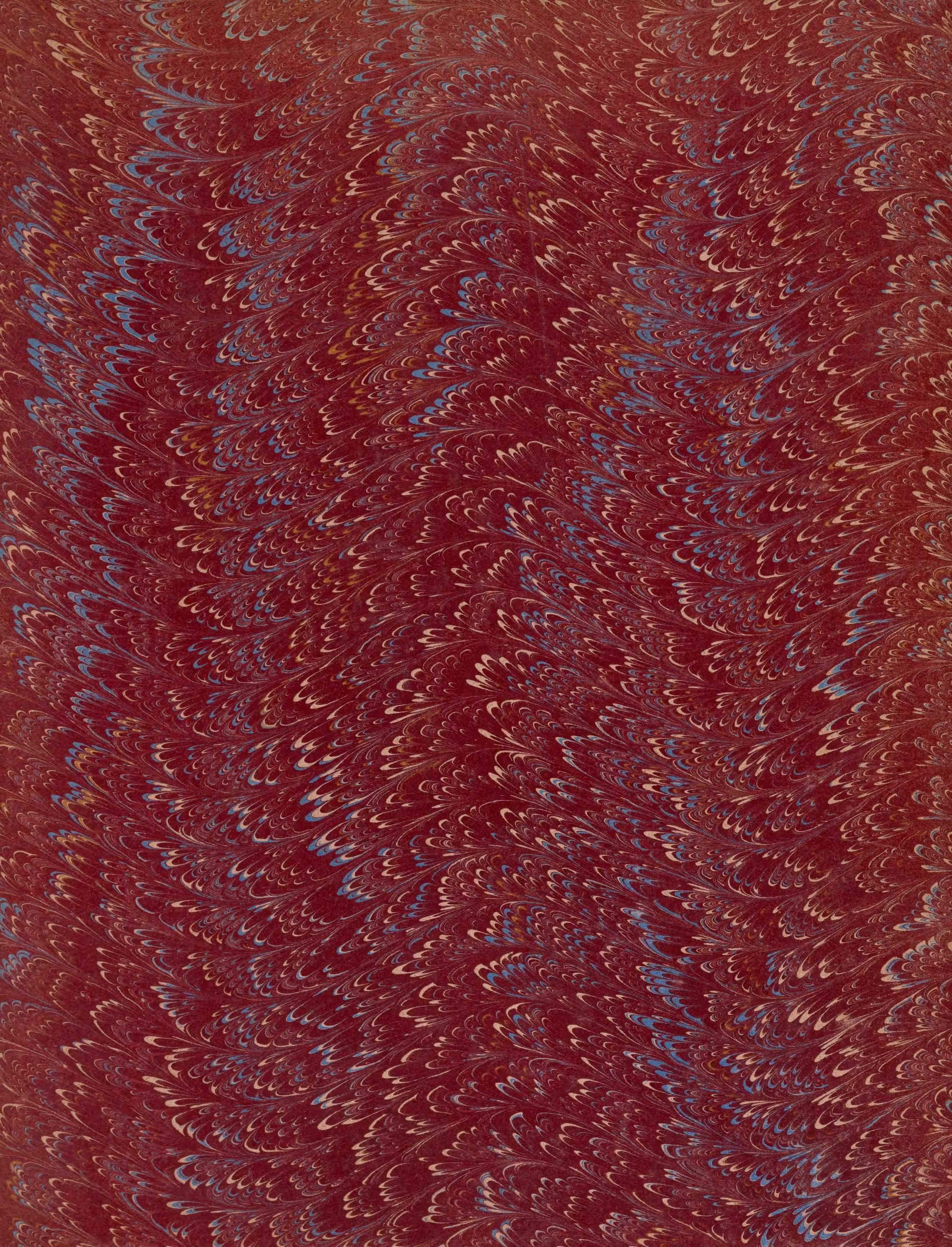








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VOLUME II.



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ORNITHOLOGICAL MISCELLANY.

EDITED BY

GEORGE DAWSON ROWLEY, M.A., F.L.S., F.Z.S.,

MEMBER OF THE BRITISH ORNITHOLOGISTS' UNION.

VOLUME II.



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ERRATA IN VOL. II.

PART VII.—Page 227, and Plate, *for* the generic name “*BRODERIPUS*” *read* “*ORIOLOUS*” (*cf.* *Ibis*, July 1877, p. 378).

Page 251, line 2, *for* “*Schilopad*” *read* “*Schildpad*.”

Page 268, in the diagram, second column, *instead of* “*Mysol*” *read* “*Mafoor*.” Also, same diagram, under “*Mysore*,” last column, opposite “*Pitta novæ guineæ mefoorana*,” *instead of* “1” *read* “—,” as this bird does not occur in Mysore.

PART X.—Page 393, and Plate, *for* the generic name “*MYIOLESTES*” * *read* “*PINAROLESTES*” (*cf.* ‘*Catalogue of the Passeriformes of the British Museum*,’ by R. B. Sharpe, forming vol. iii. of the ‘*Catalogue of the Birds of the British Museum*,’ p. 301).

* *Myiolestes*, as pointed out to us by Mr. Sharpe, is a synonym of *Hemipus*, and should never have been used for a Shrike at all.—EDITOR OF O. M.

ERRATA IN VOL. II.

Page 389 :—

For “ Lob-noz,” read “ Lob-nor.”

N.B.—In the Plate of *Pitta cæruleitorques* (p. 324) the colourist, by mistake, has made the thigh of the bird in front red ; it should be black.

PART V.

“ When cats run home, and light is come,
And dew is cold upon the ground,
And the far-off stream is dumb,
And the whirring sail goes round,
And the whirring sail goes round,
Alone, and warming his five wits,
The white Owl in the belfry sits.

“ When merry milkmaids click the latch,
And rarely smells the new-mown hay,
And the cock hath sung beneath the thatch
Twice or thrice his roundelay,
Twice or thrice his roundelay,
Alone, and warming his five wits,
The white Owl in the belfry sits.”

TENNYSON.

ON THE GEOGRAPHICAL DISTRIBUTION OF BARN-OWLS.

BY R. BOWDLER SHARPE, F.L.S., F.Z.S., &c.,
ZOOLOGICAL DEPARTMENT, BRITISH MUSEUM.

[Continued from vol. i. p. 298.]

NEARCTIC REGION.

N. America. The following concise account of the range of the Barn-Owl is taken from Dr. Coues's 'Birds of the North-west':—

"The American Barn-Owl is an abundant bird on both sides of the continent, south of a certain latitude. Unlike many of its relatives, warmly clothed and of a hardy nature, withstanding great cold, it appears of rather delicate and sensitive organization. In the Missouri region it has only occurred, to my knowledge, in Kansas, where it breeds, though it is rarely found, according to Prof. Snow. I ascertained its occurrence in Arizona; once, wading through a reedy lagoon at midday I disturbed a Barn-Owl, which rose silently and flapped along till I brought it down. It is a common bird in California—apparently the most abundant species of its family in the southern part of the State; and, according to Dr. Cooper, it extends its range to the Columbia, in lat. 46°. Dr. Newberry observed an interesting modification of its habits by circumstances which cause it to inhabit holes in the perpendicular cliffs bordering the shore of San-Pablo Bay. The same fact has been noted by Mr. Dall in the case of *Brachyotus palustris*, in the Aleutian islands; so that our Burrowing Owl is not the only

species that lives in holes in the ground. In the Atlantic States, the Barn-Owl is not abundant north of the Carolinas; I found it on the coast of North Carolina, in the salt marshes. It occurs, however, regularly, if rarely, in New York, Pennsylvania, and New Jersey. Dr. Turnbull observes:—"Not rare, and more frequent in spring and autumn. Its nest is generally found in a hollow tree, near marshy meadows." Its occurrence in New England must be regarded as exceptional; and it has not been observed in that section further north than Massachusetts. In 1843 (*Amer. Journ.* xliv. p. 253) the Rev. J. H. Linsley reported the capture of a specimen at Stratford, Connecticut. According to Mr. Allen, as above quoted, Dr. Wood took one at Sachem's Head, Connecticut, October 28, 1865. The first specimen known from Massachusetts was procured near Springfield, in May 1866, as stated in my paper above quoted; another was shot near Lynn, in the same State, in 1863, as recorded by Mr. Allen. This completes the New-England quotations to date."

Dr. Brewer, in his notes on the range of this bird, gives a few additional observations which are worth quoting:—"It is quite plentiful in Texas and New Mexico, and is one of the most abundant birds in California. It was not met with by Dr. Woodhouse in the expedition to the Zuñi river; but this may be attributed to the desolate character of the country through which he passed, as the bird is chiefly found about habitations and is never met with in wooded or wild regions. . . . Dr. Cooper speaks of finding this Owl abundant throughout Southern California, especially near the coast; and Dr. Newberry frequently met with it about San Francisco, San Diego, and Monterey, where it was more common than any other species. He met with it on San-Pablo Bay, inhabiting holes in the perpendicular cliffs bordering the south shore. It was also found in the Klamath Basin, but not in great numbers. Mr. J. H. Clark found the Barn-Owl nesting in May, in holes burrowed into the bluff banks of the Rio Frio, Texas. . . . Lieut. Couch found them common on the Lower Rio Grande, but rare near Monterey, Mexico. . . . It is not uncommon in the vicinity of Washington."

Mr. Ridgway gives it as a bird of Illinois (Ann. Soc. N. Y. x. p. 378).

Although not recorded by Dr. Brewer, nor included by Major Ross in his list of the 'Birds of Canada,' the Barn-Owl certainly straggles to the neighbourhood of Toronto, as the Museum possesses an example (η) shot by Mr. James Whitely near that city and obtained from his brother, Mr. Henry Whitely, of Woolwich; it is not to be distinguished from European specimens of the ordinary type. Below orange-buff, plentifully spotted with dusky brown, though the spots are small; bands on tail *four*, on quills *five*. Total length 13·6 inches, wing 13·4, tail 6·0, tarsus 2·85, middle toe 1·4.

θ . Another specimen, presented by Sir E. Parry, is also probably from America, north of the States. It is very like the European bird in its darker phase; bars on quills *four*, on tail *four*. Total length 12·5 inches, wing 11·8, tail 5·5, tarsus 2·7, middle toe 1·2.

ι . Mr. H. Doubleday has presented a specimen to the Museum, probably from Delaware; but, as in the case of the preceding example, the exact locality has not been preserved. It is a bird of large size, and is also similar to the dark form found in Europe; bands on quills and on tail *five*. Total length 15·5 inches, wing 14·0, tail 6·2, tarsus 3·2, middle toe 1·6.

The Museum contains no more specimens from the United States, except several from California, on which I have the following observations:—

κ . *Rio Sacramento, California* (Sir E. Belcher). Of a general golden buff-colour, like the other Californian birds; below orange-buff, slightly inclining to white; on quills remains of *four* bars, on tail of *five*. Total length 14·5 inches, wing 13·8, tail 6·0, tarsus 2·9, middle toe 1·45.

λ . *San Angel, Lower California* (obtained from Mr. Boucard). The grey colour of the upper surface very dark, the orange which appears on the head and back also very rich; below dull orange-buff, with numerous dusky spots, nowhere very thickly distributed; remains of *three* bars on the quills and of *four* on the tail. Total length 14·0 inches, wing 13·6, tail 6·0, tarsus 2·65, middle toe 1·45.

μ . Another specimen from the same source is pure white below, with very tiny spots ; on quills and on tail remains of *four* bars ; the grey mottlings on the upper surface very coarse, and more in the style of *Strix novæ hollandiæ*. Total length 14 inches, wing 13·2, tail 6·0, tarsus 3·0, middle toe 1·5.

ν . A female from California, obtained from M. Bouvier, is white below, like the preceding, but the spots are much larger ; bars on quills *four*, on tail *five*. Total length 15 inches, wing 13·3, tail 5·5, tarsus 2·75, middle toe 1·4.

o . Another specimen from California is very richly coloured, the primary-coverts being of a deep orange-chestnut, the grey mottlings on these and the rest of the upper parts very dark grey ; under surface deep orange-buff, with tolerably distinct and numerous spots ; quills with *four* bands, tail with *five*. Total length 15·5 inches, wing 12·9, tail 6·1, tarsus 3·15, middle toe 1·55.

NEOTROPICAL REGION.

Mexico. Colonel Grayson writes :—"This species is common all over Mexico. I discovered a nest in the hollow of a tree on the Rio Mazatlan." Xantus procured it at Colima, on the America river, and Grayson again in the Tres-Marias Islands (*cf.* Lawrence, Mem. Bost. Soc. N. H. ii. p. 298). Boucard obtained specimens at Oaxaca (*cf.* Sclater, P. Z. S. 1859, p. 390). The specimens in the Museum cannot be said to vary much.

π . A bird received by M. A. Bouvier from the valley of Mexico is of a beautiful rich colour above ; bars on quills *four*, and on tail *five* ; below white, with scarcely any spots. Total length 15 inches, wing 13·7, tail 5·3, tarsus 2·9, middle toe 1·3.

ρ . Another, purchased of Mr. Argent, resembles the foregoing ; bars on quills and on tail *four*. Total length 13·5 inches, wing 13·3, tail 5·5, middle toe 1·45.

σ . A second specimen obtained from Mr. Argent resembles the Veraguan bird, and is of a dark orange colour, with remains of zigzag cross lines on the breast ; bars on quills *five*, on tail *six*. Total length 14 inches, wing 13·1,

tail 5·8, tarsus 3·1, middle toe 1·55. Although stated to be from "Mexico," the locality is open to doubt.

τ. *Costa Rica*. The birds from this country commence to show indications of an approach to the *Strix guatemalæ* of Ridgway. Two specimens are in the Museum, received direct from Costa Rica by Mr. Henry Whitely, some of whose specimens, however, which we have examined from the same source, seem to be skins of Guatemalan origin (made up in the usual Coban style), although they may have been forwarded to England *viâ* Costa Rica. This might account for the appearance of *S. guatemalæ* thence, as one of the skins in the Museum has evident traces of zigzag bars on the under surface; the other is merely spotted below. In both specimens the bars on the quills and tail are *five* in number. Total length 14·5–15·0 inches, wing 13·3, tail 5·7, tarsus 2·8–3·1, middle toe 1·4–1·55. I think it right to draw attention to these facts as inducing further research into the form of Barn-Owl found in Costa Rica. According to Dr. von Frantzius it is the commonest Owl in the country (J. f. O. 1869, p. 367).

υ. *Guatemala* (procured both by Mr. Skinner and Mr. Salvin). The specimen in the Museum bears out Mr. Ridgway's characters for *S. guatemalæ*, which, he says, is like *S. flammea* in colouring, but is more uniform above and more coarsely speckled below. Total length 14·5, wing 13·4, tail 5·7, tarsus 3·25, middle toe 1·6.

φ, χ, ψ. *Veragua*. The Museum possesses three skins obtained by Arcé. They are very rufous in colour, and two of them have remains of bars on the breast; but the third has only small spots and no bars. They are all very dark above. The number of bars on the quills varies from *four* to *five*; and on the tail only *four* are to be seen, though one has indications of a *fifth*. Total length 13·0–15·5 inches, wing 12·5–13·8, tail 5·3–5·8, tarsus 3·0–3·1, middle toe 1·45–1·5. As M. Boucard received these birds direct from Arcé, we are sure of their origin; and it is interesting to note that the peculiarity of the barring on the breast is by no means constant in typical *S. guatemalæ*.

West Indies.—Cuba. The Barn-Owl from this island is supposed to constitute another race—*S. furcata* of Temminck. Not having seen a specimen from Cuba, I cannot make any remarks on the subject. Dr. Gundlach's notes on the bird will be found in his excellent paper (J. f. O. 1871, p. 378).

Jamaica. The Barn-Owl of Jamaica is also the supposed *S. furcata*. The principal character relied on is the white tail; but as this also occurs in some British specimens, it cannot be implicitly recognized as a specific distinction.

ω . A bird presented by Mr. Gosse has the tail white, but with remains of *three* bars (the occasional occurrence of which is duly noted by Mr. Ridgway); quills also showing indications of bars; under surface white, with triangular dusky spots distributed everywhere. Total length 15 inches, wing 13·4, tail 6·0, tarsus 2·95, middle toe 1·65.

α' . A second specimen from Mr. Gosse's collection has the tail entirely white, with the exception of a small brown spot in the centre of the middle feather; quills very white, with scarcely any trace of bars; underneath pure white, the spots tolerably numerous. Total length 15 inches, wing 13·1, tail 6·5, tarsus 3·2, middle toe 1·65.

β' . A male, sent to Mr. Whitely by one of his correspondents, has a pure white tail and nearly pure white quills; the under surface entirely white. Total length 14·5 inches, wing 13·1, tail 5·8, tarsus 2·95, middle toe 1·6.

γ' . The female sent with the above male is rather darker, and has a few spots on the breast. Total length 14·5, wing 13·4, tail 5·2, tarsus 2·95, middle toe 1·65.

S. Domingo. The Barn-Owl of this island is a remarkable-looking bird, as may be seen by the plate (xiv. fig. 2) in my 'Catalogue.' It has been called *S. glaucops* by Dr. Kaup, on account its silvery face; and in the barred character of the under surface it approaches the Owl of the Galapagos (*S. punctatissima*), but is larger. This barring on the breast cannot be

insisted on as a character, after the experience of its occurrence in a greater or less degree in other parts of the world. The number of bars on the tail is a much more reliable one.

♂'. A specimen collected by M. Sallé is very closely and numerously veined with wavy lines on the breast; bars *seven* in number, both on the wings and tail. Total length 13 inches, wing 10·0, tail 5·9, tarsus 2·5, middle toe 1·3.

♂'. Another specimen is not quite so typical, but has also *seven* bars on the tail, not so many distinguishable on the wing. Total length 12·5 inches, wing 10·9, tail 5·7, tarsus 2·7, middle toe 1·5.

New Granada. The Museum possesses two specimens from Bogotá, neither of them exactly like the South-American birds, but approaching more closely to the Jamaican form. The under surface is pure white, almost unspotted, and the wings and tail are white, on the latter some coarse vermiculations of brown, apparently the remains of bars. Total length 12·5–13·0 inches, wing 12·8–13·4, tail 5·2–5·5, tarsus 2·75–2·95, middle toe 1·35–1·4.

Ecuador. Fraser met with it at Quito in May 1859, where it is said to breed in the church-towers of the city, and again at Puellaro, where he got a specimen from the roof of his house (*cf.* Sclater, P. Z. S. 1860, pp. 82, 96).

Guiana. Sir Robert Schomburgk says that in British Guiana it was only noticed by him on the coast itself, and in point of fact was only observed in the houses of the colonized towns and in the plantation-buildings (Reis. Guian. iii. p. 732).

Specimens from Surinam are in the Leyden and Lisbon Museums; and in the British Museum is an example from Cayenne, presented by Mr. Rothery. Total length 14 inches, wing 13·1, tail 5·1, tarsus 2·95, middle toe 1·5.

Brazil, and remainder of South America. Prince Maximilian considers the

Barn-Owl of Brazil identical with North-American and the European species. He says that it lives, like the latter, in the dwelling-places of man, both in the town and country. He records it from Bahia, whence also specimens collected by Dr. Wucherer are in the British Museum. It appears, also, to be spread over the greater part of South America, Azara mentioning it from Paraguay and the Paris Museum possessing it from Cayenne. Marcgrave clearly describes it from Pernambuco (*cf.* *Naturg. Bras.* iii. pp. 267, 268). Two specimens collected by Dr. Wucherer at Bahia, and now in the Museum collection, are dark ashy grey; bars on quills and on tail *five*. Total length 12·0–12·5 inches, wing 11·8, tail 5·3, tarsus 2·65, middle toe 1·4. An example from Pará is contained in the Lisbon collection. Count von Berlepsch records it as an inhabitant of the province of Santa Catharina (*J. f. O.* 1873, p. 281); and Burmeister procured specimens at Novo Fribourgo, Lund in Minas Geraes. Natterer's localities are Ypanema (August, October, and November), Ponte Alta in October, and Cuyaba in June (*cf.* *Pelzeln, Orn. Bras.* p. 10). D'Orbigny (*Voy. Amér. Mérid. Ois.* p. 136) says, it "is found all over South America, at least in all the places where we went. We met it at Rio de Janeiro, at Montevideo, and at Maldonado, on the banks of the La Plata at Buenos Ayres, on the borders of the Rio Negro in Patagonia, in the provinces bordering the Parana, those of Santa Fé, Entre-rios, Corrientes, in Paraguay; we have observed it also in the whole of the republic of Bolivia—on the slopes of the Andes, as well as on the scorching plains of the centre of this republic, in the heart of the provinces of Santa Cruz, Chiquitos, and Moxos; lastly, in a word, below 13° S. lat. and as far as 42° W. long., from the Andes to the sea; as regards altitude, from the level of the ocean up to 12,000 feet, on the Andes."

Burmeister gives it as common in the whole of the district visited by him in his La-Plata journey (*Reis. La Plata-St.* ii. p. 440). Mr. Darwin obtained a specimen at Bahia Blanca, which is in the British Museum. It is dusky above, white below, with plenty of brown spots; quills with remains

of *five* bars ; tail dusky, with *five* bars on some of the outer feathers. Total length 14 inches, wing 12·0, tail 5·2, middle toe 2·7, tarsus 1·26.

In Chili it is apparently numerous and breeds, according to Mr. Brydges (*cf.* Yarrell, P. Z. S. 1847, p. 53). A specimen from the province of Santiago is in the British Museum, collected by Mr. E. C. Reed. It is a very dusky bird, especially at the tips of the quills ; below white, spotted with dusky ; remains of *six* bars on quills ; tail with *five* bars. Total length 13 inches, wing 11·6, tail 5·1, tarsus 2·6, middle toe 1·35.

A female, also from Santiago, is very dusky indeed, especially the quills and tail, both of which have *four* bands ; under surface of body golden buff. Total length 13·5 inches, wing 11·85, tail 5·5, tarsus 2·45, middle toe 1·3.

Another specimen from Chili is extremely dark, with somewhat of the aspect of the Australian *S. tenebricosa* on the upper surface ; beneath white, with dusky spots ; bars on quills and tail *five*. Total length 14 inches, wing 12·5, tail 5·4, tarsus 2·65, middle toe 1·35.

In Peru, Mr. Whitely has procured the Barn-Owl at Tinta and Arequipa (Scl. & Salv. P. Z. S. 1867, p. 989 ; 1869, p. 155), and Jelski at Monterico, in Central Peru (*cf.* Taczan. P. Z. S. 1874, p. 553) ; while in Eastern Peru Mr. E. Bartlett met with it at Xeberos, and also obtained the eggs of the bird at Nauta (*cf.* Scl. & Salv. P. Z. S. 1873, p. 303).

Galapagos Islands. The peculiar little dusky Owl of the Galapagos was procured by Mr. Darwin in James Island (Voy. Beagle, Birds, p. 35), and has more recently occurred to Dr. Habel, who met with it in Indefatigable Island (*cf.* Scl. & Salv. P. Z. S. 1870, p. 323). The size of this Barn-Owl is very small ; but otherwise it is not so very different from *S. glaucops*, of San Domingo ; bars on wings *three*, on the tail remains of *four* ; but probably more are lost in the dusky mottlings at the end of the quills. Total length 13 inches, wing 9·4, tail 4·6, tarsus 2·4, middle toe 1·1.

CONCLUSION.

In concluding this sketch of the geographical distribution of *Strix flammea* and its allies, I must notice a very good summary of the range of the species given by Dr. von Pelzeln (Reis. Nov. Vög. p. 378). I also cannot avoid quoting some excellent remarks which have been given by other naturalists on the variations of the Barn-Owl in different parts of the world, as they seem so thoroughly to concur in my determination to unite all the known species under one heading.

Thus, Professor Schlegel (Mus. P.-B. *Striges*, p. 1) speaks as follows concerning *Strix flammea* :—

“ This species is spread over all parts of the world ; but it presents in several localities variations, more or less pronounced though often inconstant, in the size and proportion of certain parts or in slight modifications in the shade of colour. As regards these, we can propound the following facts as a general rule. The feathers on the lower part of the tarsus are a little less developed in exotic individuals than in those from Europe ; I have, however, examined examples from Sennaar and North America which, in this respect, differ in no way from European individuals. The Barn-Owls of the New World, and more particularly those which inhabit the north of South America, are often of a larger size than those from other parts of the world ; and their toes, as well as their *tarsi*, no matter what the size of the individuals may be, are constantly a little bigger in proportion. It happens, moreover, that in individuals from Cuba, sometimes also in those of North America and even in those from South America, the quills incline strongly to white on their basal half, and that the tail is also of the same colour and distinguished for a more or less complete absence of spots. As regards the colour of the species in general, we know that there exist two accidental varieties :—the one with dark plumage, of which the ground-colour of the lower parts inclines more or less strongly to rufous ; the other with light plumage, whose lower parts

are more or less white. In Europe and America these two varieties are found in about equal numbers; in Africa the dark variety is rarer than the light; and specimens from Java and Australia appear constantly to represent a light-coloured plumage. We lay aside the supposed character of a forked tail in American specimens, the emargination of this organ being absolutely the same in proportion in individuals from different parts of the world. The result of these facts is that it is excessively difficult, if not impossible, to characterize the Barn-Owls of the different parts of the globe, and that, without denying the existence of several conspecies under the heading of this species, we have not yet the power to establish them in an indisputable manner; we are therefore bound to a simple enumeration of specimens according to the different localities which the species inhabits, only dividing for the moment under a separate title the Barn-Owls of the New World."

Mr. Allen (Bull. Harv. Coll. ii. p. 342) writes:—

"Respecting the numerous species of late recognized in the *Strix flammea* group of Owls, Mr. Cassin has with great propriety remarked that naturalists have 'established species on very slender characters.'

"As is well known, different specimens from near the same locality vary considerably in colour and size, while specimens from different continents are frequently almost undistinguishable. From the considerable number of specimens I have seen from different points—as Europe, the United States, South America, Southern Asia, the West Indies, Australia, and South Africa—I see no reason why the *Strix flammea* may not be regarded as having a nearly cosmopolitan distribution, which, indeed, seems to be the present opinion of several European ornithologists. Nearly the same variations in colour appear to occur on each continent, the general colour in specimens from near the same locality varying from yellowish rufous to pale fulvous, and the dusky spots from being large and conspicuous to nearly obsolete or entirely wanting."

Mr. Ridgway recognizes the following races of *S. flammea* (N.-Am. B. iii. p. 11):—

- α. flammea.* Hab. Europe and Mediterranean region of Africa. Wing 10·70–12·00, tail 4·80–5·50, culmen 0·75–0·80, tarsus 2·05–2·15, middle toe 1·25–1·30. Tail with four dark bands, and sometimes a trace of a fifth.
- β. pratincola.* Hab. Southern North America and Mexico. Colours lighter than in *S. flammea*. Wing 12·50–14·00, tail 5·70–7·50, culmen 0·90–1·00, tarsus 2·55–3·00. Tail with four dark bands, and sometimes the trace of a fifth.
- γ. guatemalæ.* Hab. Central America, from Panama to Guatemala. Wing 11·30–13·00, tail 5·30–5·90, tarsus 2·55–2·95. Colours of *flammea*, but more uniform above and more coarsely speckled below.
- δ. perlata.* Hab. South America (Brazil &c.). Tail more even and lighter coloured; the dark bars narrower and more sharply defined. Colours generally paler and more greyish. Wing 11·70–12·00, tail 4·80–5·20, tarsus 2·40–2·75.
- ε. furcata.* Hab. West Indies (Cuba and Jamaica). Colours as in *perlata*, but secondaries and tail nearly white, in abrupt contrast to the adjacent parts. Tail usually without bars. Wing 12·00–13·50, tail 5·60–6·00, culmen 0·85–0·95, tarsus 2·70–2·85, middle toe 1·45–1·60.
- ζ. delicatula.* Hab. Australia. Colours of *pratincola*, but less of the ochraceous and with a greater prevalence of the grey mottling. Tail with four dark bands. Wing 11·00, tail 5·00, culmen about 0·85, tarsus 2·05–2·45, middle toe 1·30–1·40.
- η. javanica.* Hab. India and Eastern Africa. Same colours as in *delicatula*. Tail with four dark bands (sometimes a trace of a fifth). Wing 11·00–11·70, tail 5·10–5·40, culmen 0·85–0·90, tarsus 2·30–2·45, middle toe 1·35–1·45.

It is principally with a view to show the variation in the characters mentioned by Mr. Ridgway, whose essays on the Accipitres are always characterized by the most painstaking labour, which makes me devote to them very full consideration and study, that I have been induced to go so minutely into the details of the specimens which have come under my notice. The following is a summary of the chief measurements of the specimens examined from various countries:—

	Wing. inches.	Tail. inches.	Tarsus. inches.	Middle toe. inches.
England	11·4–12·4	5·0–5·5	2·2–2·4	1·05–1·15
France	11·3–11·9	4·8–5·5	2·4–2·5	1·2
Germany	11·0–11·8	5·0–5·3	2·3–2·4	1·15–1·25
Egypt	12·1	5·1	2·35	1·25
Tangier	11·7–12·0	4·9–5·3	2·5–2·8	1·2–1·25
Senegambia	10·4–11·0	4·2–4·4	2·35–2·45	1·15
Abyssinia	12·1	4·8	2·5	1·2
South Africa	11·4–12·4	4·5–5·2	2·35–2·75	1·25–1·3
Madagascar	11·8–12·8	5·0–5·4	2·5–2·7	1·2–1·25
India	11·0–12·5	5·0–5·5	2·2–2·75	1·35–1·45
Ceylon	11·6	5·2	2·5	1·4
Burmah	11·8	5·0	2·4	1·35
Java	11·6	5·3	2·9	1·4
Siam	12·4	5·0	2·9	1·45
Lombok	11·6	5·2	2·55	1·4
Australia	10·8–11·8	4·8	2·4–2·6	1·3–1·4
Samoa	10·0–10·8	4·5–5·0	2·5–2·6	1·2–1·3

It will be seen that the English specimens, and, indeed, the European birds generally, are for the most part smaller as regards the *middle toe*, and that the Indian and Malayan examples are the largest; but the variation is very gradual. A summary is as follows:—

	Wing. inches.	Tarsus. inches.	Middle toe. inches.
Palæarctic Region	11·0–12·4	2·2–2·8	1·05–1·25
Ethiopian Region	10·4–12·8	2·35–2·75	1·15–1·3
Indian Region	11·0–12·5	2·2–2·75	1·35–1·45
Malayan Region	11·6–12·4	2·55–2·9	1·4–1·45
Australian Region	10·0–11·8	2·4–2·6	1·2–1·4

With these may be compared the American specimens:—

	Wing. inches.	Tarsus. inches.	Middle toe. inches.
Nearctic Region	12·9–14·0	2·65–3·15	1·4–1·55
Neotropical Region:—			
Central America	12·5–13·7	2·8–3·25	1·3–1·6
Antilles, Jamaica	13·1–13·4	2·95	1·6–1·65
South America	11·6–13·4	2·45–2·95	1·25–1·5

The above measurements show conclusively the larger size of American, especially Central-American, specimens as regards the legs and toes ; but in Chilian birds, where the appearance of the Barn-Owls is most like that of the European, the measurements are also more approximative, and it seems to me *impossible to draw the line*.

As regards the number of bars on the wings and tail, the following synopsis of the variation in the bars in the series examined conclusively disposes of this character as of specific importance :—

	Wing-bars.	Tail-bars.
Palæarctic Region :—		
England	3-4	4-5
France	4	4
Germany	5	4-5
Egypt	5	5
Morocco	4-5	4-5
Mean	3-5	4-5
Ethiopian Region :—		
Senegambia	3-4	4
Abyssinia	5	5
S. Africa	5-6	4-5
Madagascar	4-5	5
Indian Region :—		
India	2-4	4-5
Burmah	3	4
Malaisia	3-4	4
Nearctic Region	3-5	4-5
Neotropical Region :—		
Central America	4-5	4-5
South America	4-6	5

In the above summary only the ordinary *Strix flammea* is considered, without any of the very extreme races. These latter are :—

<i>Strix insularis</i>	approached by ordinary <i>Strix flammea</i>	from Cape-Verd peninsula ;
<i>Strix rosenbergi</i>	„	„ Lombock ;
<i>Strix glaucops</i>	„	„ Veragua ;
<i>Strix punctatissima</i>	„	„ Veragua and <i>Strix glaucops</i> .

No doubt isolation has a great deal to do with the variation in the Barn-Owls, the tendency to a dark colour being a character of all the insular forms excepting the Jamaican and British birds, which are extremely light-coloured. Some French birds match the light English ones ; and, again, dark French birds are the same as German and Danish, while New-Granadan examples are scarcely to be distinguished from Jamaican. Thus it comes that I trace a regular gradation in the series, which makes me admit only one species of Common Barn-Owl, the only really distinguishable species being the following :—

STRIX NOVÆ HOLLANDIÆ.

Mr. Gould considers that this bird is confined to Australia, where it enjoys a wide range. He writes :—“ With the exception of the north coast, I have received specimens from *every* part of the country. During my visit to the interior of South Australia, numerous individuals fell to my gun, which upon comparison presented no material variation from others killed in New South Wales and Western Australia ” (Handb. B. Austr. i. p. 64).

Captain Sturt (Exp. Centr. Austr. ii. App. p. 16) writes :—“ This fine night-bird was very rare in the interior, and only one specimen was procured. Its plumage is characterized by that softness so peculiar to the genus to which it belongs, and in consequence of which its flight is so silent and stealthy that, like the footfall of the cat, it is unheard. This Owl was shot on the Darling, after having been startled out of a tree.”

Considerable variation, as Mr. Gould justly remarks, exists in the plumages of this bird, some being dark and some quite light in colour. He observes that out of numerous examples killed in South Australia in the month of June, he did not meet with one in the “white plumage.” This accords with my own experience ; and there seem to be two distinct phases of the bird. Taking the South-Australian bird as the typical form, it may

be briefly described as of a golden-buff colour mottled with black and greyish white above; white below, plentifully marked with triangular spots of ashy brown or blackish; the under wing-coverts and axillaries also spotted; the leg-feathers and under tail-coverts pure white; face pure white, excepting a rufous patch before the eye; wings partaking generally of the character of the upper surface, and distinctly barred across with dark brown and orange, very apparent on the primaries when opened, but scarcely seen on any of the secondaries. *Seven* bands are distinguishable on the tail-feathers, an *eighth* being apparently lost in the mottling at the end of the feather. Total length 14·5 inches, wing 12·5, tail 6·3, tarsus 2·35.

The above short description is taken from a South-Australian specimen in the British Museum, presented by Sir George Grey. Mr. Gould has also given a similar bird to the same institution. This is the one described at length in the 'Catalogue;' but no locality is known for it beyond "Australia." It measures:—Total length 15·5 inches, wing 13·4, tail 6·0, tarsus 2·55. From its larger size it may be a female, and the foregoing bird the male. The bands on the tail are only *six*; and the spots on the flanks are larger, many being of a horseshoe-shape. Otherwise, except for being a little more yellow, it is very like the above-mentioned South-Australian bird.

The Museum likewise contains a specimen, in the same type of plumage, from Queensland. I have found that all the birds in the National collection from this province and from Northern Australia are paler in colour; and it is only in South Australia that I have found any specimens approaching in their dark plumage and chestnut disks the Tasmanian *Strix castanops*. Concerning the latter bird, Mr. Gould writes:—"Tasmania, and probably the brushes of the opposite coasts of Victoria and New South Wales, are the native countries of this Owl." He would probably consider that the bird described by me as the "dark phase" of *S. novæ hollandiæ* (Cat. B. ii. p. 304) is really a South-Australian specimen of *S. castanops*; and this confirms me in the correctness of my conclusion that the latter cannot be

regarded as more than a large dark race of the ordinary Australian *S. novæ hollandiæ*, certain birds from the southern part of the continent being intermediate to the island form. From *S. delicatula*, which it approaches in some stages of plumage, its large size and powerful thinly plumed legs ought to distinguish it, as well as the greater number of tail-bands.

Mr. Ramsay writes (P. Z. S. 1875, p. 380):—"It is a very variable species. I noticed in Mr. J. B. White's collection, obtained at Springsure, a very dark-faced variety; the facial disk was of a deep chestnut. Another, shot at Dalrymple's Gap, on the coast-ranges, has the disk almost white, and large spots on the under surface." I have also seen a dark-faced specimen from Queensland in the fine collection formed by Mr. Cockerell, and now in the possession of Mr. F. DuCane Godman; so that the dark-visaged birds occur equally in Northern and South-eastern Australia. Mr. Ramsay says that the species is now common in the bushes of the coast-range of Queensland. Two examples collected at Port Essington by Captain Chambers were presented by him to the British Museum.

STRIX CASTANOPS.

Hab. Tasmania.

As above stated, I consider this to be only a race of the foregoing species; and it is quite certain that it has, like other Barn-Owls, a lighter and a darker phase. It is in the latter plumage that it looks most distinct; but in its light dress it cannot be told from certain continental skins. How variable is the size of the Australian Barn-Owls can be judged from the following series of measurements, which, in my opinion, place their dimensions beyond the pale of a genuine specific character:—

	Total length.	Wing.	Tail.	Tarsus.	Middle toe.
	in.	in.	in.	in.	in.
<i>a.</i> Australia	13·5	12·2	5·8	2·65	1·7
<i>b.</i> S. Australia	14·5	12·3	5·8	2·55	1·5
<i>c.</i> Queensland	15·0	12·8	5·8	2·6	1·7
<i>d.</i> Australia	14·5	12·8	6·4	2·8	1·9
<i>e.</i> Australia (<i>Gould</i>)	14·5	13·1	5·9	2·6	1·7
<i>f.</i> Queensland (<i>Gould</i>)	16·0	13·3	6·5	2·8	1·75
<i>g.</i> Queensland	17·0	13·9	6·5	3·1	1·9
<i>h.</i> Tasmania (<i>Antarct. Exp.</i>)	16·0	12·0*	6·5	3·1	1·85
<i>i.</i> Tasmania	15·5	14·4	7·2	2·95	1·95
<i>k.</i> Tasmania	20·0	14·6	8·0	3·2	2·05
<i>l.</i> Tasmania	17·0	14·8	6·9	3·25	2·15

STRIX TENEBRICOSA.

This is a very rare bird, even in Australia. Mr. Gould (Handb. B. Austr. i. p. 66) says that he believes it to be "an inhabitant of the great brushes of New South Wales, those of the Clarence, Richmond, &c." The British Museum possesses an example from the neighbourhood of Brisbane, obtained from M. A. Bouvier, out of the great Queensland collection purchased by that gentleman in London in the autumn of 1874. Mr. J. B. White also brought a specimen to this country, among other rare birds of prey obtained by him in the interior of the last-named province (*cf.* Sharpe, P. Z. S. 1875, p. 339; *id.* Cat. B. ii. p. 305). Mr. Ramsay (P. Z. S. 1875, p. 580) considers it to be very rare in Queensland, and obtained only one specimen, in the bushes near Dalrymple's Gap. Lastly, Dr. A. B. Meyer (Sitz. Akad. Wien, lxi. p. 396) has recorded the occurrence of the species in New Guinea, an example having been procured by himself at the foot of the Arfak mountains in July 1873. He says that it agrees in colouring with Australian birds, but is rather smaller. A series, however, would be necessary for comparison, as I am inclined to think that the difference of size in the sexes of this bird is greater than in other Barn-Owls.

* The wing seems full-grown; but even if this is not so, the other dimensions are fully approached by the Queensland specimen *f*.

STRIX CANDIDA.

Mr. Blyth gives, as the habitat of this species in the Indian peninsula :—
“Plains of India : very rare in the mud-soil of Lower Bengal, within reach of the tide” (Cat. B. Mus. A. S. B. p. 42).

Dr. Jerdon writes as follows (B. Ind. i. p. 118) :—“The Grass-Owl is found throughout the greater part of India, but thinly scattered and by no means plentiful. I first procured it on the grassy side of a hill on the Neilgherries, at about 6000 feet of elevation. I afterwards obtained it in the Carnatic and in Central India ; and it was procured by Tickell in the same district, and probably occurs also in the N.W. Provinces ; for Mr. Philipps, under the name of *Strix javanica*, mentions its living in long grass, and to be found in abundance some miles from Hodal. Tickell, too, mentions its being found throughout Bengal and the Upper Provinces.” [Mr. Philipps’s bird is supposed, and with reason, to have been *Asio accipitrinus*.] A specimen from Madras is in the Leiden Museum.

Colonel Tickell was the first to describe this species from the jungles of Borabhúm and Dholbhúm. He says it frequents the long grass jungle, and passes its life almost entirely on the ground, seldom perching even on the lowest tree (J. A. S. B. ii. p. 572). On the faith of this, Mr. Ball includes it in his Chota-Nagpur list, but does not appear to have seen it himself (S. F. 1874, p. 381). Captain Beavan says :—“I myself have observed this species only once. When hunting for leopards in the district of Rungpore, in 1859, several were put up out of grass at the bottom of a half-dried-up piece of water, in thick jungle” (P. Z. S. 1868, p. 400). Mr. Hume records two instances of the breeding of this Owl in Tirhoot, near Shapur, in October 1866, on the authority of Mr. C. H. Parker (Nests & Eggs Ind. B. p. 60). Colonel Irby obtained specimens in the open country of Oudh and Kumaon (Ibis, 1861, p. 227). Mr. Blyth writes (Ibis, 1866, p. 261) :—“I never obtained this bird in Lower Bengal ; but I remember that the late Prof. Wallich had a coloured drawing of one that, as I understood from him, had been killed in the Calcutta Botanic Garden.” Major Godwin-Austen, in his list of the birds of the Khasia Hills,

records it as obtained on the border of the grass-country near the Kopili river (J.A.S.B. 1870, p. 93). Dr. Jerdon obtained it at Suddya, in Upper Assam (Ibis, 1871, p. 343); and in a recent collection sent to me from Nazeerah, in the same country, were two examples of the bird. Blyth states that it occurs near Tonghoo, in Burmah; and Major Lloyd has also obtained it in this vicinity, according to Lord Walden (B. Burm. p. 68). A nestling of this species from Tenasserim has been presented to the British Museum, which may be the specimen alluded to by Mr. Blyth (Ibis, 1870, p. 160).

It has not been noticed from Siam or Southern China; but it probably occurs, as Mr. Swinhoe has met with it in S.W. Formosa (P.Z.S. 1871, p. 344), and it goes to the Philippine Islands (*cf.* Walden, Tr. Z. S. ix. p. 145). Two specimens, of Mr. Cuming's collecting, are in the Derby Museum (*cf.* Blyth, Ibis, 1865, p. 30). Dr. Meyer also obtained an example; and that it breeds in the Philippines is evident from a nestling bird which is in the British Museum.

It may also occur in some of the Moluccan islands, as it is found in Australia. A specimen from Queensland was named *Strix walleri* by Mr. Diggles, but was afterwards identified with *S. candida*. Mr. Godman possesses a Queensland specimen. More recently (Ibis, 1876, p. 512), Mr. E. P. Ramsay discovered an example in the Sydney Museum that had been killed near that town.

STRIX CAPENSIS.

Hab. Southern Africa. It does not occur in the neighbourhood of Cape-town; but Mr. Atmore has found it breeding near Blanco, where it is not rare and inhabits the palmiet vlees. Mr. Henry Bowker obtained it at Masura, in Moshesh's country; and Mr. Ayres records it from Natal. Here Captain Shelley also shot a specimen, near the Umgeni river. Mr. Ayres has also procured the species in the Transvaal, where he states that he found them inhabiting the long rushes in the swamps near Potchefstroom, but not plentifully. Mr. T. E. Buckley shot a specimen in

the Transvaal, on the 8th of June, 1873, in a marsh, among some long reeds. As yet it has not been recorded from the Zambesi, nor have Andersson or Anchieta met with the species in South-western Africa; but a specimen was collected by the late Dr. Welwitsch at Golungo Alto, in Angola (*cf.* Souza, Cat. Accipitr. Lisb. Mus. p. 55).

**STRIX THOMENSIS.*

This species is confined to the Island of S. Thomas, in Western Africa. I have never seen the bird; but it is considered to be a good species by Professor Barboza du Bocage, who has one in the Lisbon Museum (*cf.* Souza, Cat. p. 55).

* [*Note.*—As respects the genus *Strix*, *cf.* Mr. Sharpe's paper on the determination of *Strix flammea* as the type of the genus (Ibis, 1875, p. 324), and also an essay in 'The Ibis,' 3rd ser. vol. vi. Jan. 1876, pp. 94 *et seq.*, "On the Assignment of a Type to Linnæan Genera, with especial reference to the Genus *Strix*," by ALFRED NEWTON, M.A., F.R.S., &c.—EDITOR OF O. M.]



J.G. Keulemans lith.

M & N Harhart imp

CHRYSÆNA VICTOR, *Gould.*

THE BIRDS OF THE FIJI ISLANDS.

BY MR. G. D. ROWLEY.

[Continued from vol. i. p. 262.]

CHRYSÆNA VICTOR, Gould.

Th. χρυσὸς, gold, and οἰνὰς, a dove.

Had the Paphian goddess ever known *Chrysæna victor*, Gould, there is little doubt that instead of the Doves of Mount Ida she would have taken to her affections this bird; but laughter-loving Venus, to speak in the language of “the blind old man of Scio’s rocky isle,” never obtained the species. If such good luck had come to her, the blue-eyed maid would have tried to coax her, as Juno did, and offered her “in exchange” the Owl, *Athene meridionalis*, Risso, which, as Canon Tristram says (Land of Israel, chap. iv. p. 67), “was certainly the little species which stands out on the coins of old Athens, the emblem of Minerva,”—not the Eagle Owl (*Bubo ignavus*, T. Foster); for Minerva had nothing to do with the latter, unless, indeed, she was a collector, which, as far as I know, Hawtrey did not teach, and Homer did not tell. In order that we may not be in the same lamentable condition of columbine nescience as the sea-born goddess, this charming orange-coloured Dove of a golden genus is figured here. Well has Mr. Gould given the name “*victor*” to the beautiful Pigeon! And Pigeons are beautiful; lovely among the loveliest, however, this bears away the palm. “*Palmam qui meruit ferat.*” It is worthy to be the subject of quarrel between a Juno, a Minerva, and a Venus. Would that we could be wafted for a few hours to the forests of

Taviuni, to see it "preening its feathers, and shaking itself together," and to hear the cock "cluck to his green wife in their cool retreat."

Dr. Otto Finsch writes thus concerning *Chrysæna victor* (P. Z. S. 1873, p. 733):—

"I beg leave to remark that Dr. Gräffe (as already stated, P. Z. S. 1871, p. 643) was the first who mentioned the existence of this conspicuously coloured Dove, saying (J. f. Orn. 1870, p. 418): 'In Lanthalu, einer Insel nahe bei Taviuni, kömmt eine höchst eigenthümliche Chrysæna-Art mit ganz mennigerothem Gefieder vor, von welcher ich ein Exemplar, in einem Käfig gehalten, in Levuka sah, aber leider nicht erhalten konnte, da es der Liebling einer englischen Dame war.' Dr. Gräffe's 'Lanthalu' seems to be synonymous with the small island east of Oamea named 'Laucala' on Stieler's 'Hand-Atlas' (No. 51), and very close to the isle of Vuna, or Taviuni, from which my specimens were obtained. These were labelled, in the collector's handwriting, 'Waup Doves; top of mountains, Taviuni: feed on berries.'

"As regards the generic position of this singular Dove, I may add that it is undoubtedly a member of the genus *Chrysæna*, which, as we (Finsch & Hartl. Orn. Centr.-Polyn. p. 134, note) have already shown, is distinguishable from *Ptilinopus*, not merely by the peculiar and unique structure of the feathers in *Chr. luteovirens*, but chiefly in having no shortened and narrowly pointed first quill, which is so characteristic of the genus *Ptilinopus*. *Chr. victor*, as well as the *Chr. luteovirens*, has the first primary long, without emargination, and equal to the seventh, a short tail which is covered by the elongated tail-coverts; and the tarsi are not feathered to the toes as in *Ptilinopus*, but only at its base. Although *Chr. victor* does show the extraordinary structure of feathers seen in *Chr. luteovirens*, its plumage exhibits also a singular structure in respect of the length and laxity of the radii, which resemble mostly those in the genus *Coryllis* (*Loriculus*)."

The peculiarity of the feathers which Dr. Finsch above, speaking of the

genus *Chrysæna*, calls unique, is such as to make it difficult to give the effect in a Plate; and the bird is so beautiful that to imitate the red-hot colour is next to impossible, and makes the eyes ache.

Mr. Gould has the merit of first bringing this fine species to the notice of English ornithologists, which he did at the meeting of the Zoological Society on November 7th, 1871 (P. Z. S. 1871, p. 642), and expressed himself thus :—

“ I propose to call it *Chrysæna victor*; it is the second species of the genus, of which *C. luteovirens* is the type.

“ *CHRYSÆNA VICTOR*, Gould.

“ *Size*. About, or perhaps a trifle larger than, that of *C. luteovirens*.

“ *Colour*. The entire surface of the body, both above and below, a lovely carmineous orange; while the head and throat, as if in direct contrast to the brilliant colouring of the body, is of a dull silvery pea-green; under surface of the wings rich pure yellow, the primaries becoming orange on the upper surface of their outer webs, and their shafts dark olive above.

“ Total length 7 inches; bill $\frac{3}{4}$, wing $4\frac{1}{4}$, tail $2\frac{1}{2}$, tarsi $\frac{3}{4}$.

“ The female and young will probably be green, as in the case of *C. luteovirens*; at least I find a stray feather or two of that colour on each side of the body.

“ Mr. T. J. Moore ” (of the Liverpool Museum) “ has favoured me with the following note :—

“ “ The bird I now send was obtained by Mr. Thomas Binns Robson, of New Brighton, Cheshire, during his visit to the Fiji Islands in September 1867, and was presented by him to the Derby Museum on his return to England. Mr. Robson was so good as to give me the following information respecting it :—“ The native name is *Buli ndamu*. It appears to be not infrequent in the locality where he shot it, Mbua, a native town and

missionary settlement on the south-west of the Island of Vanua Levu, and the principal place of resort in that district." He described it in glowing terms as appearing, from its gorgeous colouring, "like a flash of light," even at the distance of a quarter of a mile! Its note resembles somewhat the cracking of the thumb and finger; and the natives by resorting to this expedient induce the birds to answer, and thus to betray their whereabouts when out of sight. Mr. Robson could not give me any information respecting its nest and eggs, nor of its food, except the general fact that it feeds on berries.'

"Since the above remarks were in type, Mr. Sclater has forwarded to me the following note:—'Dr. Eduard Gräffe has already spoken of the existence of this bird, in his article on the Ornithology of Polynesia, in Cabanis's 'Journ. f. Orn.' 1870, p. 478. Dr. Gräffe saw a specimen of it living in a cage at Levuka, Ovalau, belonging to an English lady.'"

Mr. E. L. Layard, writing upon the birds of Fiji (P. Z. S. 1875, p. 30), says:—"By the way, Professor von Suhm, of the 'Challenger,' and I, after going carefully into the subject, have come to the conclusion that the 'Orange Dove' of Taviuni and Lanthala (*Chrysæna victor*, Gould) is a phase of plumage of the 'Green Dove' (*C. luteovirens*); the change is hardly more remarkable than the adult change of *Ptilonopus perousei*, also from green to yellow, though a very light one."

Again (p. 151), Mr. Layard expresses himself thus on *Chrysæna viridis*, sp. nov.:—"One of the naturalists of the 'Challenger,' Dr. von Suhm, obtained several specimens, but wrongly identified it as *C. luteovirens*, which he did not procure. I agreed with him at the time, till I obtained specimens for myself, and, finding it in the full breeding-stage, came to the conclusion that my first impression of its being *C. luteovirens* not in breeding-dress must be erroneous. The acquisition of *C. luteovirens* in all stages showed me, beyond a doubt, that it is distinct; I therefore describe it as an addition to the genus *Chrysæna*.

“ I have been puzzled by the natives identifying the female of this and of *C. luteovirens* with *C. victor* of Gould ; but I think I may now affirm, from both native and European testimony, that the female and young male of that species are green, as are those of *C. luteovirens*. *C. victor* is more widely distributed than I at first thought; it has been obtained at Lanthala, Bua, Ngamea, and Taviuni. The natives call it ‘*Bulindamu* ;’ at Kandavu they called *C. viridis* ‘*Sokulu* ;’ on Ovalau they designate *C. luteovirens* by the name of ‘*Buniaco*.’ ”

In ‘*The Ibis*,’ 1875, 3rd ser. vol. v. p. 435, Mr. E. L. Layard says :—

“ *CHRYSÆNA VICTOR*, Gould.

“ In the same locality [the island of Taviuni, in the Fiji group] my son, Mr. Leopold Layard, procured the ‘Orange Dove,’ and found, as I predicted, that the female and young male were green. The latter may be distinguished at any time from the female by the orange tinge on the head and plumage generally, and the deeper orange of the vent and under tail-coverts. Some of the settlers informed him that they had found young birds entirely green. He also shot the full-plumaged orange male in amorous chase after the green female. They were in such a state of fat that he used the cuttings to grease his gun-barrel to keep it from rust.”

“ Taviuni is unlike any other island of the group ; and I already know four or five species peculiar to it.”

In the P. Z. S. 1875, p. 437, Mr. Layard remarks on this bird :—“ The ‘Orange Dove’ of planters is found chiefly on Taviuni (especially on the north end), on the little island of Ngamia, at the island of Lauthala, and at Bua on Vanua Levu. The female and young male are dull green. I have an orange bird with many green feathers still remaining in it, shot at the end of November by Mr. Liardet on Taviuni, where it is called ‘*Bulindamu*’ by the natives.

“ Mr. Kleinsmidt, a gentleman in Levuka much addicted to natural

history, has preserved one of these birds alive for more than a year, feeding it on wild berries fetched daily from the forest. In uttering its bark it opens its lower mandible wide, and then closes it with a snap, jerking its head at the same moment. It is very fond of the sun, preening its feathers, and 'shaking itself together.' If kept in the shade it mopes, and sits with feathers all puffed out, and looking wretched.

"Some Europeans declare they have had young birds unable to fly in the orange plumage; and they tell me the natives say they have taken them from the nest, male and female being thus coloured. I cannot credit this, and have offered £1 reward for a pair of nestlings in the orange garb. This alone will convince me; and I shall then come to the conclusion that this is an abnormal race that is being propagated, like the white one of *Procellaria gigantea* of the south-west coast of Africa."

Dr. Otto Finsch says (P. Z. S. 1875, p. 557, in "Notes on the Genus *Chrysæna*"), on Mr. Layard's remark that *C. victor* is a phase of plumage of *C. luteovirens*:—"I have examined a good series of *Chrysæna luteovirens* collected by Dr. Gräffe at Viti Levu and Ovalau, and have seen all the changes of plumage from the uniform green dress of the first year (the so-called *Pt. feliciæ*, Hombr.) to the full-grown stage of the yellow plumage. This latter is, no doubt, that of the very old bird, which is likewise distinguished by a peculiarity in the structure of the feathers not to be found in any other member of the genus *Ptilonopus*. The small feathers, with exception of those of the head in *Chrysæna luteovirens*, are remarkable for their narrowed cylindrical form, reminding one in some respects of those of *Xipholena*. But this structure is not to be found in *Chrysæna victor* at all; so that if one were to take the structure of the feathers solely as a distinguishing generic character of *Chrysæna*, *C. victor* could not be placed in the genus. But as I have shown already (P. Z. S. 1873, p. 733, footnote), the genus *Chrysæna* differs from *Ptilonopus* chiefly in having no shortened and narrowly pointed first quill. In this character, as well as in the shortness of

the wing, *C. victor* agrees very exactly with *C. luteovirens*; so that of their generic relationship there can be no doubt. But *C. victor* does not possess the peculiar feather-structure of *C. luteovirens*. Instead of the cylindrical structure of *C. luteovirens*, the feathers of *C. victor* are remarkable for the length and laxity of their rachis, which resemble those of the Parrot-genus *Coryllis* (*Loriculus*), so that the upper tail-coverts project a little over the tail-feathers. Now if *C. luteovirens* were only a phase of plumage of *C. victor*, this could be only in relation to age, and consequently *C. luteovirens* would have to be regarded as the younger bird. But the structure of its feathers shows a peculiarity which can only be attained in the fully adult bird; and there cannot be the slightest doubt that *C. luteovirens* would never lose this extraordinary character of feathers and again assume a structure of feathers which comes nearer to that of the young state. I need hardly remark that the coloration in the two species is totally different, being in *C. luteovirens*, in mature state, dark yellow, and in *C. victor* deep orange-red, nearly the same as in *Rupicola crocea*; but I may remark that *C. victor* gets this splendid garb immediately after its first green dress, without going into an intermediate yellow dress, such as that of *C. luteovirens*. One of the specimens of *C. victor* which I have had the pleasure of examining showed the change of plumage very clearly, having on the sides of the belly and flanks still some grass-green feathers, the remnants of the first plumage. Another point of importance is also the range of both species. *C. luteovirens* has been found only on the islands of Viti-Levu and Ovalau, whereas *C. victor*, so far as our knowledge extends, is confined to the small islands of Taviuni and Lanthala, on the east coast of the large island Vanua-Levu. I believe the above-given remarks and comparisons between *C. luteovirens* and *C. victor* are sufficient to prove that they form excellent species, which ought not to be confounded in any way."

Mr. Edgar L. Layard says (*Ibis*, April 1876, 3rd ser. vol. vi. p. 138):—

"The forest about here [Ngila, Taviuni] rises in a gradual slope to an

altitude of 800 or 1000 feet above the level of the sea. The lower portion has evidently at some time been felled and cultivated, but is now covered with a second growth of timber. This, though of fair size, contained little to interest us—now and then a stray ‘Orange Dove,’ in the young or green plumage. As we ascended the range the timber became finer, and young ‘Orange Doves’ became more plentiful.

“As we hunted about, an odd chuckling sound, like a coachman starting his horses, was heard; and ‘Pretty’ (the Laconi boy), knowing what we wanted, excitedly whispered ‘Manu-manu dum-dum,’ which is, being interpreted, ‘the red bird.’

“We dived into the ‘bush’ after the boy, who peered up into the green leaves; suddenly he stopped, beckoned excitedly, whispering ‘Manu-manu dum-dum’ in a rapid voice, and pointed upwards. We gazed in vain, till what we had taken for the gorgeous tint of a dying leaf suddenly sprang to another bough. The ‘coachman’ tried to start his horses again; and at every ‘chuck’ the ‘gorgeous orange’ jerked up and down in the oddest manner. It was *Chrysæna victor* of Gould, in all his glory! which in a few moments fell like an orange-and-gold ball headlong to the ground.

“Brethren of the B. O. U. (I know you can rejoice with me over the acquisition of a rare bird of beautiful colours and strange appearance), picture to yourselves our delight as we handled the brilliant Orangebird, with the sunlight gleaming through its golden wings, and lighting up the emerald-green of its bill and feet, and of the cere round the yellow-buff eye, now closing, alas! in death.

“We ‘lifted [him] up tenderly,’ stroked the smooth feathers of the strangely coloured head, and recalled the moment when Mr. Gould exhibited the first specimen in the rooms of the Zoological Society. How little did I dream that I should be the first, perhaps the only one, of those present who gazed on the beautiful bird, to shoot it in its native haunts.”

Again, p. 151:—

“This gorgeous Dove is the glory of the forest of Taviuni, and, I now

find, is more generally distributed over a certain range of country than I suspected. It certainly is found in Lanthala* and Rambi islands, and on Vanua Levu, about Bua, Ndreketti, &c. ; and this, coupled with the discovery of the other species of birds already alluded to in this paper as residing there, seems to point to the fact that at no very distant date (geologically speaking) these islands were joined together, and not, as now, separated by the Straits of Somo-Somo. Those of 'The Ibis' brotherhood who have shot the 'Cock of the Rock' can readily picture to themselves the 'flame' of the Orange Dove as he pursues some rival through the green forest—the eye fairly dazzled as the orange ball on golden wings turns and twists in the sunlight. Dull days do not suit him a bit, and he hides away and mopes, never uttering a sound ; but with the bright sun he emerges from his retreat, and 'clucks' to his green wife from many a 'cool retreat.' The young males never utter this sound, and would be mistaken for females, but that the vent is more orange. They breed about December or November, making a rude platform of small twigs for a nest, not usually above 8 or 10 feet from the ground, and laying two eggs, pure white, axis 1" 4"', diam. 1".

"People have told me they have taken the young birds orange-coloured from the nest, and seen orange females. I regret to say I don't believe them !

"*C. victor* feeds on many sorts of small and large berries and fruits, swallowing them whole."

Dr. Otto Finsch, writing upon a new species of Fruit-Pigeon from the Pacific island of Rapa, "erroneously called on our maps" Opara (P. Z. S. 1874, pp. 92 *et seq.*), remarks that "the geographical distribution of the fruit-eating Pigeons in the numerous islands of the Pacific is very interesting, and confirms the rule that insular regions produce a great quantity of species, peculiar in many cases to very small islands." He then proceeds to give

* [All these islands are well seen in Petermann's map ('Die Viti- oder Fiji-Inseln,' 8vo, Gotha: Justus Perthes, 1862), to be got at Messrs. Williams & Norgate's, 14 Henrietta Street, Covent Garden.—EDITOR OF O. M.]

instances which bear out the dictum, and proceeds to say :—" Although some of these are nearly allied to each other, they are nevertheless valid species, which keep their distinctive characters always exact. At least, after a long acquaintance with most of them, I can declare that I have never found specimens which would lead to the belief that there exist intermediate forms between them. It must be remarked as a singular fact that in those island groups where two species occur, these are totally different and confined in their distribution to certain localities. Thus in the Society Islands we find *Ptilonopus purpuratus* only on Tahiti, *Pt. chrysogaster* on Huaheine. We must further notice the total absence of Pigeons on the Sandwich Islands, and the occurrence of very peculiar species on certain remote and isolated islands. Thus *Chrysæna victor*, Gould, is confined to Taviuni*, one of the smallest islands of the Feejee group, whereas *C. luteovirens*, H. & J., lives in Viti-Levou and Ovalau, and now we learn that so small an island as Rapa produces one of the most remarkable species of the genus. In considering all these points we shall find it extremely difficult to explain what has caused such extraordinary phenomena in geographical distribution ; and, to confess the truth, we must allow that we are still far off from understanding these questions satisfactorily, and that hypothesis only will serve us to answer them."

Mr. Gould says of the Trochilidæ :—" In the whole of my experience, with the skins of many thousand Humming-birds passing through my hands, I have never observed an instance of any variation which would lead me to suppose that it was the result of the union of two species."

With this statement regarding species in a very numerous family, coming from an ornithologist of well-known authority, agrees Dr. Finsch's remark that he never found specimens which would lead to the belief that there existed intermediate forms between them (*i. e.* the species of the Fruit-eating Pigeons). The sayings of these two ornithologists on the subject are worthy digestion.

* [Mr. Layard now mentions others (*cf.* p. 31, also p. 36).—EDITOR OF O. M.]

The remarkable difference of plumage between the sexes in the genus *Chrysæna* places it in Class I. of Darwin's Rules or Classes of Cases (Descent of Man, vol. ii. p. 187, chap. xvi.). "In this Class, the young of both sexes resemble, more or less closely, the adult female; while the adult male differs, often in the most conspicuous manner, from the adult female;" and he instances the common Pheasant, Duck, and House-Sparrow.

The Plate is taken from one of two adult males in my collection, marked "23 July, 1875. Ngila, Taviuni, Fiji. Food, berries. Beak and cere green; legs green; iris yellow-buff. Collected by Mr. E. L. Layard."

The green bird is a young male from the above locality, dated August 1, 1875, which I have from the same source. It would be interesting to watch the gradual change from the green to the orange.

LAMPROLIA VICTORIÆ, Finsch.

Dr. Otto Finsch, Curator of the Bremen Museum, first introduced this bird to science—"a most remarkable new Passerine form, from the Feejee Islands." He says, in the P.Z.S. 1873, p. 733, that he was indebted to Mr. T. Klinesmith, of Levuka, Ovalau, through Mr. Michelsen, of Hamburg, for a pair; and proceeds thus:—"At first sight the bird immediately proves to be new—not only as a species, but also as the type of a new genus, which I propose to call

"LAMPROLIA*, nov. gen.

"*Diagn. gen.* Bill and feet as in *Saxicola*, but the nostrils covered partly by the frontal feathers; wings long and rounded, with very short projecting point of primaries, as in *Thamnobia*; tail short, rounded; mode of coloration Paradiseine.

* From *λαμπρὸς*, *splendidus*, and *λεῖος*, *lævis*.

“ *Bill* (fig. 1) moderate, straight, slender, at base broader than high; culmen subcarinated, slightly curved, and the sides gradually compressed to the tip, which is slightly emarginated; the gape furnished with a few short bristles.

“ *Nostrils* basal, lateral; the opening oblong, without membrane, and partly covered by the brush-like erectile frontal feathers.

“ *Wings* (fig. 3) long, rounded, reaching beyond the middle of the tail; first primary moderately short, a little longer than half of the second, which is shortened and nearly equal to the eighth; fourth and fifth quills equal and longest, third scarcely shorter; projecting point of primaries very short; quills, especially the secondaries, very broad, with rounded tips; ten primaries and nine secondaries.

“ *LAMPROLIA VICTORIÆ*, Finsch, sp. nov. (Plate LXII.)

“ *Diagn.* Jet-black; feathers on head and neck tipped, scale-like, with shining steel-blue; rump, upper tail-coverts, and tail partly silky white.

“ *Descr. av. ad.* Jet-black; mantle and shoulders velvet-black, the same as the outer webs of the secondaries, which latter in certain lights exhibit a purplish gloss; the feathers on the head, sides of head and neck, on the chin and throat, as well as on the smallest wing-coverts along the cubitus, tipped with oblong apical spots of a rich shining steel-blue, which in certain lights changes into glossy green; feathers on the occiput, nape, and hind neck show the same structure, but the apical tips are glossy purplish violet, changing into steel-blue or green; lores deep jet-black; rump and upper tail-coverts shining silky white, the same as the two middle tail-feathers, which are broadly tipped with black, glossed strongly with purplish violet; the remaining tail-feathers black, and only on the outer web shining silky white, which on the outer feathers is more restricted, showing a gradually broader black apical portion; the outermost tail-feather uniform black; bill and feet black.



J.G. Keulemans. lith

M & N Hanhart imp

LAMPROLIA VICTORIÆ, *Finsch.*

Total length. centims.	Wing. millims.	Tail. millims.	Outmost feather. millims.	Bill from front. millims.	Bill from gape. millims.	Tarsus. millims.	Middle toe. millims.
c. 14	85	45	38	12	19	23	12
—	78	45	40	12	19	23	14

“The specimen from which the above description was taken is undoubtedly an old bird in full dress, and apparently a male; the second specimen agrees in every respect, except that the wings are a little shorter and the point of the bill shows scarcely any emargination; it may perhaps be a female. This new bird is a native of the yet unexplored island of Vuna, or Taviuni, of the Feejee group, which, separated only by the Somo-Somo passage, lies a few miles east of the south-east point of Vanua-Levu, one of the main islands of that group. A collector’s note says, ‘The small black bird, native name ‘*Kaya*,’ from top of mountains, Taviuni, has the habits of a perching bird or Robin; eyes dark brown.’

“I have great pleasure in naming this most remarkable and brilliant new species *Lamprolia victoriæ*, in honour of Her Imperial and Royal Highness Victoria, Crown-Princess of the German Empire and of Prussia.”

Mr. E. L. Layard says (Ibis, October 1875, 3rd ser. vol. v. p. 435):—

“Mr. L. Layard, who obtained several specimens of this singular bird, informs me that it creeps about in the lower growth of the thick saplings and among the pendent thin lianas and vines in the very thick forest, in the same locality as the *Myiagra azureocapilla*. Occasionally they descend to the ground and peck among the fallen leaves. When disturbed, they flit among the lianas, at no great height (say 20 feet) from the ground. He only saw one, upon a tall tree. When chasing each other, he heard them utter a sharp shrill twitter; at other times they were silent. Their food he found to consist entirely of small beetles. Bill and legs black; iris dark horn.”

Again (P. Z. S. 1875, p. 432), the same writer says:—“It is confined to a mountain-range on the north of Taviuni. Mr. Liardet, in a late expedition,

procured several specimens. From his description of its habits I should be inclined to place it near the 'Chats' (Saxicolinæ), the curious white upper half of the tail helping me to this idea. Mr. Liardet says the natives call it '*Wali-na-koli*,' which means 'the dog cannot catch it,' in allusion to its habit of running on the ground and, when pursued by the dog, flying up just out of reach. It is only known to the natives in its immediate vicinity."

The Plate is taken from a male and female in my own collection, both obtained at Ngila, Taviuni, Fiji, by Mr. Layard:—the male, 2nd August, 1875; the female, 29th July, 1875. The food is stated to be insects.

No illustration can give the beautiful soft plumage of this species, which resembles velvet, and has a lovely sprinkling of lustrous tips to the feathers on the head, throat, and breast. The female is smaller than the male. Both sexes have the white patch on the rump, which is not of a dull, but shining white, like satin. The bird must be in life quite a little gem, of which the faded skins can present but a faint resemblance.

Mr. E. L. Layard says (Ibis, 1876, 3rd ser. vol. vi. p. 148):—

"*LAMPROLIA VICTORIÆ*, Finsch.

"One of my chief objects in proceeding to Taviuni was to see this singular and beautiful species in its native haunts. It frequents the higher ranges of the mountains, never by any chance coming down to the sea-level. It is, as far as my present knowledge goes, confined to the island of Taviuni, though a gentleman (on whose observations I do not place much confidence) has assured my son that he has seen it on the neighbouring islands of Vanua Levu. A lad, also, told me both it and the 'Orange Dove' (*Chrysæna victor*) inhabit the Jasawas group of islands. It is never seen together in greater numbers than three—a family party, father, mother, and chick; for, strange to say, *the female never lays more than one egg*. We found so many nests with

solitary nestlings, and saw so many family parties, that there can be no doubt of the fact, which, so far as I can call to mind, is unique among the Insesores. We were a month or three weeks too late for their eggs, and too early for the second hatch, which I suspect they have, as the forest was full of young birds. The nests had chiefly fully fledged young ones; and only one had a single fresh egg; off this last I shot the female. This nest was built at the forked extremity of a thin horizontal twig, about four feet from the ground (none that we saw were out of reach of our hands), composed of fibres and the macerated strands of a species of flag, and lined with feathers, among which I detected the brilliant yellow breast-plumes of *Pachycephala torquata* (to which they seemed partial) and those of *Carpophaga latrans*. The structure, though light, is tolerably thick; diam. 3" 9''' outside, 1" 9''' inside; depth 2" 9'''. The eggs have a pale pink ground, generally coloured with dark pink spots of various sizes, the colour of which seems to have run at the edges. Another egg was almost white, with minute pink freckles; but it was addled, and, I think, a season old, and consequently bleached. Axis (of the good egg) 1", diam. 9'''.

"In habits *Lamprolia victoriæ* shows considerable affinity to *Thamnobia*, in its jerky motions, mode of flight, clambering up the thick (or thin) lianas, drooping its wings and elevating its tail. My son saw one clinging upright to a tree and digging into an ants' nest; one had its mouth full of white ants, destined probably for its young. It has a variety of cries, but no song that we heard; it chattered defiance at us if near its nest, and was not at all shy. At other times it uttered a stridulous cry. The mouth of the young bird is bright yellow inside. When flying through the forest its course is pretty straight and swift, not jerky or undulating; it rarely, if ever, ascends trees of any altitude, always keeping to the undergrowth."

LORIUS SOLITARIUS (Lath.).

Latham says (Gen. Hist. of Birds, vol. ii. p. 190):—

“112. *Solitary Parrot*. Inhabits the island of Feejee, in the Pacific Ocean, whence it is brought into Tonga-taboo and Otaheite for the sake of the red feathers in the plumage. Now and then seen alive in the latter island. The manners are solitary.

“At Otaheite and the Friendly Isles Parrots in general are called *Kakao*, and the Parrakeets *Hainga*.—Cook’s last Voyage, Appendix.”

He describes one in Lord Stanley’s collection.

As regards the solitary habits mentioned above, Mr. Layard says (Ann. & Mag. Nat. Hist. Nov. 1875, p. 344) that his son saw it in *company* with *Trichoglossus aureocinctus*.

Again (P. Z. S. 1875, p. 426), the same writer remarks:—“This lovely little bird, called ‘kula’ by the natives (and *solitarius* by Latham, *because it is never seen alone*), is found throughout the islands, its favourite food being the flowers of the *Erythrina* when in bloom, or those of the cocoa-nut when others fail. The collector, if he wants these little beauties, need only seek some tree in flower on which they feed, and sooner or later every flock in the district will visit it. I have heard of sixteen being killed off one tree in a morning’s shooting. They are trapped in great numbers by the natives, for sale to the Tongans and Samoans, who periodically pluck them, their crimson feathers being much used for ornamentation. Europeans find much difficulty in keeping them alive even for a short period; but I am told the native girls chew sugar-cane and berries, and allow the birds to feed from their lips.”

Drs. O. Finsch and G. Hartlaub (‘Ornithologie der Viti-, Samoa- und Tonga-Inseln,’ p. 23) describe the adult thus:—

“Supra psittacino-viridis; pileo, abdomine imo et tibiis splendide violascente-cæruleis, occipite



J.G. Keulemans lith.

M.&N. Hanhart imp.

LORIUS SOLITARIUS, *Latham.*

nigricante-cæruleo et viridi variegato; subalaribus viridibus; fascia colli postici dilute et nitide viridi; gastræo reliquo, capitis lateribus et fascia lata interscapulari ex scarlatino coccineis; rectricibus basi et medio macula flavo-aurantiaca notatis; rostro et pedibus pallidis."

Of two males and a female in my collection, all from Mr. Layard, 1875, the first is from Na Mala, Taviuni, Fiji—food, berries; the second had honey in it, from fruit-blossoms; the third, a female, from Ovalau, was said to have eaten "cocoa-nut flowers."

The sexes do not differ, except that the female is a trifle the smaller of the two.

Total length of male about 8 inches.

Dr. Finsch describes the species in 'Die Papageien,' vol. ii. p. 760.

"*Solitarius*" is a misleading name, which I should alter; but the change would be a worse evil.



J.G. Keulemans lith.

M & N. Hanhart imp

1. *Hypsipetes madagascariensis*.
2. " *borbonicus*.
3. " *olivaceus*.

- 4^a *Hypsipetes crassirostris*, *adult*.
- 4^b " " *young*.

ON THE
SPECIES OF *HYPsipETES*
INHABITING
MADAGASCAR AND THE NEIGHBOURING ISLANDS.

By ALFRED NEWTON, M.A., F.R.S., V.P.Z.S., &c.

(Plate XLII.)

AMONG the many features which the fauna of Madagascar and its neighbouring islands has in common with the Indian Region there are perhaps few whereby the connexion by land, which we may almost certainly assert to have once existed between those now distant localities, is better shewn than by the presence in the former, and there alone in the Ethiopian Region, of certain members of the forest-haunting genus *Hypsipetes*. These are four in number, and closely resemble each other—so much so, that their distinctions may be easily overlooked without careful inspection. It may therefore be agreeable to ornithologists that these differences should be concisely pointed out, and the history of each form given in a connected way.

Two of the birds of which it is my business here to treat were known to and figured by the ornithologists of the last century. Brisson* and, after

* Ornithologie, ii. pp. 291, 293.

him, De Montbeillard* described both the *Merle cendré de Madagascar* † (the latter giving it the additional name of *L'Ourovang*) and the *Merle de l'Isle de Bourbon*. Brisson also figured each species ‡; and Daubenton included the *Ourovang* in his grand series of plates §. This also received the names *Turdus madagascariensis* and *T. urovang* from the compilers P. L. S. Müller || and J. F. Gmelin ¶ respectively; while the other, unnoticed by Müller, was by Gmelin called *T. borbonicus* **. Shortly after, Latham followed Gmelin; and then for many years no further attention was paid to either bird.

The genus *Hypsipetes*, founded in 1831 by Vigors †† with the then new but now well-known *H. psaroides* of the Himalayas as its type, was deemed by him to belong to the Shrikes; and in the same family Sykes also placed it when, in 1832, he described ‡‡ a second species, *H. ganeesa*, from the Deccan; but by general consent it has of late years been referred to the *Turdidæ*, and frequently included in the somewhat vague subfamily *Pycnonotinæ*. Whether this last is a proper determination is a question I shall not here discuss, nor shall I dwell on any of the Indian forms of the genus further than is necessary for my present purpose, since I understand from Mr. Sharpe that he has been studying them, and the results of his labour will doubtless be communicated to the ornithological public with his accustomed promptness and ability.

Somewhere about the year 1835 a specimen, out of an indiscriminate collection of bird-skins formed at the Cape of Good Hope, in New Holland,

* Histoire Naturelle des Oiseaux, iii. pp. 380, 395.

† The "*Hourrouue*" (= *Hourrouve*) of De Flacourt, which he says is a kind of "merle," is probably this bird. Hist. de la grande Isle Madagascar, p. 166 (ed. 1661).

‡ *Tom. cit.* pl. xxiv. fig. 3, and pl. xxv. fig. 2.

§ Planches enluminées d'Histoire Naturelle, No. 557. fig. 2.

|| Natursystem, Suppl. p. 139.

¶ Systema Naturæ, i. p. 836.

** *Tom. cit.* p. 821.

†† Proc. Comm. Sc. & Corresp. Zool. Soc. part i. p. 43.

‡‡ *Op. cit.* part ii. p. 86.

and in Mauritius, was figured by Jardine and Selby*, and by them doubtfully referred to the above-named *H. ganeesa*; but Sykes, it would seem, at once perceived that it did not belong to his species, and furnished those gentlemen with the means of representing the real *H. ganeesa*. This they subsequently did†, and at the same time took the opportunity of applying the epithet *olivacea* to the subject of their former plate.

In 1845 it appeared to Blyth‡ that this "*H. olivacea*" required to be generically distinguished from *Hypsipetes*; and he accordingly proposed to call it *Ixocincla*, remarking that "it differs from *Hypsipetes* in its more bulky form, and more meruline bill, and in the greater size of the legs and toes, but in other respects is nearly allied." Herein few subsequent authorities, so far as I am aware, followed him; but he added, with remarkable sagacity, "*Turdus borbornicus* [sic], Lath., is perhaps a second species of this type."

When the Massena collection was made ready for sale, in 1846, a catalogue (somewhat elaborate for those days) of its contents was drawn up, as is understood, by Jules Verreaux. Herein not only appears "*Hypsipetes olivacea*," but also *H. ourovang*§; and thus the oldest of the three forms then known found its way into the genus to which the others had already been referred.

In 1855 Dr. Pucheran, fortified by Bonaparte's opinion, declared|| that two specimens in the Museum of Paris, which had been brought home, without any indication of locality, by Quoy and Gaimard in the 'Uranie,' and had long borne in the gallery of that building the name of *Turdus atricilla*, conferred on them by Cuvier, but never described under it, were of

* Illustrations of Ornithology, iii. pl. 148.

† *Op. cit.* iv. pl. ii.

‡ Journal of the Asiatic Society of Bengal, xiv. p. 575.

§ Catalogue de la magnifique Collection d'Oiseaux de M. le Prince d'Essling, Duc de Rivoli, p. 6.

|| Archives du Muséum, vii. p. 340.

the same species as an example of *Hypsipetes* from Mauritius; and he accordingly treated this *Turdus atricilla* as a synonym of Blyth's *Ixocincla olivacea*.

So matters stood when, in 1860, Dr. Hartlaub gave new life to the study of the ornithology of Madagascar and its dependencies by the publication, first in the 'Journal für Ornithologie' for that year*, and then separately†, of his valuable work. Herein, however, it must be remarked that, as regards the subjects of the present paper, he fell into two errors—the result of insufficient material. He ignored the *Turdus borbonicus*, observing however that an example from Bourbon, in the Museum of Vienna, of what he called "*Hypsipetes olivacea*" shewed some difference from another, the *habitat* of which last he left unnamed, as though it were Madagascar.

Meanwhile my brother, Mr. Edward Newton, who had gone out to Mauritius in 1859, had sent home a small collection of birds he had made in that island, and in it some specimens of what were at first doubtfully supposed to be *Turdus ourovang*‡, but were without much delay correctly referred to "*Hypsipetes olivacea*"§; and thus the true habitat of that form was decided.

The explorations soon after begun by MM. Pollen and Van Dam in Bourbon and Madagascar enabled Professor Schlegel|| to resuscitate the old *H. borbonicus*, to point out a hitherto unknown character wherein it differed from *H. madagascariensis*, and to reestablish the separate *habitat* of each as originally asserted. In the complete account of the researches of these explorers, published in 1867 and 1868, details as to the self-standing existence and distinct *habitat* of each of the three forms then known were

* "Systematische Uebersicht der Vögel Madagascar's," *tom. cit.* pp. 1-16, 81-112, 161-180.

† Ornithologischer Beitrag zur Fauna Madagascar's, u. s. w. Bremen: 1861.

‡ Ibis, 1860, p. 201.

§ *Tom. cit.* p. 307.

|| Proc. Zool. Soc. 1866, pp. 422, 423.

fully given; and since the publication of their work* no doubt can have been entertained on the subject.

The fourth form was discovered in the Seychelles during Mr. Edward Newton's investigation of the birds of that group of islands in 1867, and was soon after described by him under the name of *H. crassirostris* †.

Though the forms of *Hypsipetes* with which I have here to do have been on the whole fortunate, considering the fate of other birds, in not being loaded with any very cumbrous synonymy, it will be convenient, before ending this paper, to give concisely the names under which they have been mentioned by various writers. But I would first observe that the name of the genus is undoubtedly of the masculine and not of the feminine gender, as was thought by Jardine and Selby; and thus, though in the foregoing passages I have violated one of the first laws of grammar by making the adjective disagree with its substantive in gender, I have only done this by way of quotation and out of respect for what I hold to be a prime duty—the literal transcription, errors included, of any phrase one may have to cite.

Now, having delivered myself of these very dry historical details, it is time to say something as to the birds themselves; and to begin, let us consider the *habitat* of each.

The four forms, or species, with which I now occupy myself have each a very definite home. The first (*H. madagascariensis*) has the most extensive range. It seems to be found almost everywhere in Madagascar, and is recorded from the adjacent Comoro Islands. I have, indeed, never seen a specimen that did not come from the “grande île africaine;” but I accept unhesitatingly the statement of Mr. Sclater that a specimen obtained by

* Recherches sur la Faune de Madagascar et de ses Dépendances. D'après les découvertes de F. P. L. Pollen et D. C. van Dam. Part ii. pp. 96–98. Leyde: 1868.

† Proc. Zool. Soc. 1867, pp. 344, 345; Ibis, 1867, pp. 344, 359.

Dr. Kirk at Mohilla* was of this species. The second (*H. borbonicus*) is confined to the Island of Réunion (formerly Bourbon). The third (*H. olivaceus*) is limited to Mauritius. And the fourth (*H. crassirostris*) is peculiar to the Seychelles group.

Rodriguez, so far as research has hitherto carried us, shews no sign of having ever possessed any member of the genus—a very singular fact when we think that geographically it lies nearest to the Indian Region, the *focus* of this type of birds. Both my brother and I have looked in vain among the bones obtained from the caves of that island by Mr. Jenner, and more recently by Mr. H. H. Slater, for a fragment which we could refer to the genus *Hypsipetes*. Remains of a Starling-like bird, already indicated by a nameless French navigator †, and distinguished by the cave-hunter of the late Transit-of-Venus Expedition (in the as yet unpublished report of his investigation) as *Necropsar*, as well as those of more than one other form of Passeres are forthcoming; but there is no trace of an *Hypsipetes*.

This genus has been fortunate also in its appellation. On whose inspiration Vigors, when he selected the word, acted, it were now vain to surmise; but from what has been said by Jerdon ‡ and others of the Indian species, *ὑψιπέτης* (the “high-flyer”) is not only applicable to but eminently characteristic of its members: theirs it is

“To dwell aloft on life-sufficing trees.”

That the same may be truly said of the non-Indian forms is evident from the following notes, with which my brother has been good enough to furnish me:—

“The three species of this genus [*H. madagascariensis*, *H. olivaceus*, and

* Ibis, 1864, p. 298. MM. Pollen and Van Dam (*op. cit.* p. 97) say that Dr. Kirk also found this species at Anjuan (Johanna); but I have not discovered the passage in which this assertion is made.

† Proc. Zool. Soc. 1875, pp. 39–43; Alph. Milne-Edwards, Ann. Sc. Nat. Zool. sér. 6, ii. art. 4.

‡ Birds of India, ii. pp. 77–80.

H. crassirostris] with which I am acquainted in a wild state are very similar in their habits and manners. They frequent forest and bush only, keeping entirely amongst the trees and brushwood, and never resorting to cultivated and cleared places or feeding on the ground. Their food consists of fruits and berries; and in no instance have I discovered the remains of other diet in the gizzards of those which I have examined. They may often be seen taking long and high flights, in parties of two or three, over the tops of trees from one part of the forest to another, or chasing each other, sometimes in the low brushwood and at other times in the branches of the taller trees. They are inquisitive and tame; and any one entering a forest where they are is sure to be attended by one or two, which, flying close to his head or hopping on the low boughs a few feet above him, will follow him for some distance, uttering a low whistle or harsh croak, and, comically jerking their tail on one side and their head on the other, look down askant on the intruder.”

My brother continues his remarks:—

“In Mauritius and Seychelles the species found in each have much diminished in number, chiefly on account of the clearing of the forests in order to plant sugar-canes in the former and cocoa-nuts in the latter. In Mauritius I have reason to believe that many eggs and young birds of all sorts are destroyed by Monkeys (*Macacus radiatus*)*, as I know that in one portion of forest, where these mischievous creatures had been nearly exterminated in consequence of their depredations on the neighbouring cane-fields, in two or three years all the smaller species of birds increased in a sufficiently marked manner, and the ‘Merles’ [*H. olivaceus*] and ‘Cuisiniers’ [*Oxynotus rufiventer*] in particular.

“The ‘Merles’ have a pleasant song, not unlike that of the Mistletoe-Thrush [*Turdus viscivorus*], but somewhat hoarser. The bird, when singing, always chooses the topmost branch, generally a dead one, of some tall tree

* “These were introduced from India, and are now spread over all the remaining forest and rocky ground.”

for its station. So far as my experience goes, they always build in low bushes. The nest is flat, shallow, and ill built of coarse grass, roots, and moss, and lined with finer materials, such as the flower-stems of umbelliferous plants.

“The eggs of *H. madagascariensis** are of a creamy white, blotched and spotted thinly with lead-grey and more thickly with deep pinkish brown. In some specimens the lead-grey spots are entirely wanting and the pinkish brown spots are more numerous, in one example forming a complete zone round the larger end. The eggs measure from .93 to 1.05 by from .71 to .78 inch.

“The eggs of *H. olivaceus* are much like the former; but I have only seen two specimens. They are of a salmon-colour, blotched and spotted with two shades of lilac and pinkish brown, chiefly at the larger end, and forming a zone around it. They measure 1.23 by .83 inch.”

As the above description shews, the eggs of these two species indicate a greater affinity to those of the *Ixidæ* than to those of the true *Turdidæ*—if the former be allowed to rank as a separate family; and it would seem that the eggs of *H. psaroides* (the type species of the genus), according to Hutton’s account, as quoted by Jerdon†, and of *H. nilghirensis*, as described by Mr. Hume‡, are of the same character. I am not aware that those of any other *Hypsipetes* are known§; but if any dependence is to be placed on oological features, they would certainly intimate the alliance of this genus to *Ixus* rather than to *Turdus* and its allies.

There seems here no need to repeat the notes on the four species of

* One has been figured by Mr. Hewitson, *Ibis*, 1863, pl. xiii. fig. 5.

† *Loc. cit.*

‡ Nests and Eggs of Indian Birds, pp. 280, 281.

§ MM. Pollen and Van Dam were evidently deceived as to those passed off to them as eggs of *H. borbonicus*:—“de la grosseur d’une noisette et d’un bleu pâle verdâtre” (*op. cit.* p. 98). They were most likely the produce of *Acridotheres tristis*.

which I am treating that have been already published—on *H. madagascariensis*, *H. olivaceus*, and *H. crassirostris* by my brother, and on the first, second, and *H. borbonicus* by MM. Pollen and Van Dam. It will suffice to append the synonymy and a diagnosis of each, with a very few other remarks.

1. *HYPSIPETES MADAGASCARIENSIS*. (Pl. XLII. fig. 1.)

? *Hourrouue* [= *Hourrouve*], De Flacourt, Hist. Madag. p. 166 (1661).

Le Merle cendré de Madagascar, Brisson, Orn. ii. p. 291, pl. xxv. fig. 2 (1760). (Fig. et descr. orig. e mus. Realm. a Poivre allat.)

L'Ourovang ou Merle cendré de Madagascar, De Montbeillard, Hist. Nat. Ois. iii. p. 380 (1775); Daubenton, Pl. enl. no. 557. fig. 2.

Turdus madagascariensis, P. L. S. Müller, Natursyst. Suppl. p. 139 (1776). (Ex "Buffon"—errore pro De Montbeillard.)

Cinereous Thrush, Latham, Synops. ii. p. 64 (1783).

Turdus urovang, J. F. Gmelin, Syst. Nat. i. p. 836 (1788).

Turdus ourovang, Latham, Ind. Orn. i. p. 351 (1790).

Orova, Sganzin, Mém. Soc. Mus. Strasb. iii. livr. i. signat. MM. p. 26 (1840).

Hypsipetes ourovang, "J. Verreaux," Catal. Mus. Rivoli, i. p. 6 (1846).

Hypsipetes urovang, Pollen & Van Dam, Rech. Faun. Madag. &c. ii. p. 96 (1867).

Diagn.—"Superne cinereus, nonnihil ad olivaceum inclinans, inferne dilute cinereus; vertice nigricante, ad viridem vergente, remigibus exterius cinereo-fuscis, interius fuscis; rectricibus cinereo-fuscis."

The above is from Brisson, and is not only correct but seems to be sufficient even for these critical days if we add:—

Iridibus clare rubris. Long. tota 8·25, alæ 4·4, caudæ 4·1, acrotarsi ·77, dig. med. sine ungue ·6, hallucis sine ungue ·4, maxillæ a fronte ·9, ejusdem a rictu 1·09, mandibulæ ab articulo 1·65, rostri altitudo ad frontem ·25 poll. Angl.

This species differs from the rest far more than they do among themselves, and can easily be picked out of a large series by its small size and more cinereous coloration, which is especially observable on the lower parts.

2. HYPsipETES BORBONICUS. (Plate XLII. fig. 2.)

Le Merle de l'Isle de Bourbon, Brisson, Orn. ii. p. 293, pl. xxiv. fig. 3 (1760). (Fig. et descr. orig. e mus Realm. a De Lanux miss.)

Bourbon Thrush, Latham, Synops. ii. p. 73 (1783).

Turdus borbonicus, J. F. Gmelin, Syst. Nat. i. p. 821 (1788).

Hypsipetes olivacea, pt., Hartlaub, Journ. f. Orn. 1860, p. 98; Orn. Beitr. p. 45 (1861).

Hypsipetes borbonica, Pollen & Van Dam, Rech. Faun. Madag. &c. ii. p. 97.

Diagn.—"Superne cinereus ad olivaceum inclinans, inferne olivaceus ad flavum vergens; vertice nigro; medio ventre candicante; rectricibus fuscis, tænia duplici transversa, fusca, altera dilutiore, altera saturatiore, in apice donatis."

This, again, is from Brisson, and is very correct; but MM. Pollen and Van Dam take some exception to the manner in which he describes the very curious character of the indistinctly banded tail. With great deference to those gentlemen I should say, judging from the specimens before me, that his account is more complete than theirs; for the bands seem to me to be always visible, and not, as they imply, in one light only. The only additions I can suggest to the formal diagnosis are:—

Iridibus albidis. Long. tota 9·5, alæ 4·2, caudæ 3·6, acrotarsi ·9, dig. med. sine ungue ·72, hallucis sine ungue ·48, maxillæ a fronte ·7, ejusdem a rictu ·88, mandibulæ ab articulo 1·38, rostri altitudo ad frontem ·25 poll. Angl.

A shortening of the wing and bill in this species are very suggestive characters when we consider how often these are observable in island-forms. Perhaps, also, there is a slight thickening of the feet; but of this I cannot speak so positively. The peculiar colour of the iris is also to be noticed, as well as the banded tail already mentioned—the shafts of which are whitish.

I do not for a moment doubt that this and the next are perfectly good species, though their homes are within sight of each other.

3. *HYPSIPETES OLIVACEUS*. (Plate XLII. fig. 3.)

Hypsipetes ganeesa?, Jardine & Selby, Ill. Orn. iii. pl. 148 (183-?). (Nec Sykes, P. Z. S. 1832, p. 86.) (Fig. et descr. orig.)

Hypsipetes olivacea, id. *op. cit.* iv. (N. S.) pl. ii. (1836).

Ixocincla olivacea, Blyth, J. A. S. B. xiv. p. 575 (1845).

"*Turdus atricilla*, Cuv." Pucheran, Arch. du Mus. vii. p. 340 (1855).

Diagn.—Superne olivaceo-brunneus, inferne pallidior magisque griseus; vertice obscure nigricante; rectricibus simpliciter fuscis, latis.

The diagnosis of Jardine and Selby contains several characters that are not diagnostic, and therefore requires amendment. The very dull colour of the head, the want of bands on the tail, and longer bill distinguish this species readily from *H. borbonicus*; but not less important is the breadth of the rectrices, which are nearly twice as broad as in the kindred form. Its size sufficiently points it out from *H. madagascariensis*. We must therefore add:—

Iridibus aurantiacis. Long. tota 10·5, alæ 5, caudæ 4·25, acrotarsi 1·4, dig. med. sine ungue ·85, hallucis sine ungue ·51, maxillæ a fronte ·85, ejusdem a rictu 1·06, mandibulæ ab articulo 1·65, rostri altitudo ad frontem ·32 poll. Angl.

A young bird of this species assuming the adult dress has still enough of the nestling plumage left to allow of its description: the top of the head and upper parts generally are of a dull hair-brown, tinged with fulvous towards the rump; the remiges and wing-coverts light reddish-brown, especially on the outer webs; rectrices dull light reddish brown; chin and throat dusky white; breast dull greyish brown; belly lighter, becoming dusky white about the vent.

H. borbonicus and *H. olivaceus* resemble each other in having the inner wing-coverts of a pale fawn-colour, and herein differ from *H. madagascariensis* and from the remaining species.

4. HYPsipETES CRASSIROSTRIS. (Plate XLII. fig. 4: *a*, adult; *b*, young.)

Hypsipetes crassirostris, Edw. Newton, P. Z. S. 1867, p. 344 (Descr. orig.) ; Ibis, 1867, p. 344.

Diagn.—Superne saturate olivaceo-brunneus, inferne pallidior virescensque, rectricibus albido terminatis, rostro robustiore.

Here, again, I find the original diagnosis can be improved—judging, that is, from the present state of the specimens ; for I think the yellow tinge on the lower parts is best expressed by terming it greenish ; and the whitish tip to the tail, though it seems to be peculiar to the adult, is too important to be omitted. The remaining characters I take from my brother's paper :—

Iridibus fusco-rubris. Long. tota 10·75, alæ 5·3, caudæ 4·5, acrotarsi 1·05, dig. med. sine ungue ·8, hallucis sine ungue ·5, maxillæ a fronte 1·1, ejusdem a rictu 1·25, mandibulæ ab articulo 1·81, rostri altitudo ad frontem ·41 poll. Angl.

A young bird, older apparently than the young *H. olivaceus* I have just described, since it seems to have assumed most of the mature plumage, has some of the wing-coverts and the outer web of all the remiges deep fulvous. The tail is without any whitish tip, and the bill is dusky orange. This species, of which I have seen but four specimens (the three obtained by my brother, and one other given to me by Professor Perceval Wright), is, so far as we know, confined to the islands of Mahé, Silhouette, Praslin and Marianne, in the Seychelles group.

The Plate, for which ornithologists are indebted to the liberality of Mr. Rowley, not only represents the adult and young of this species (the only one of the four forms which till now has remained unfigured), but also shews the curious difference in the colour of the irides of each member of this group—a peculiarity which first attracted the attention of my brother.

Magdalene College, Cambridge,
May 1876.

TRICHOGLOSSUS ARFAKI (*A. B. Meyer*).

[Continued from vol. i. p. 148.]

BY MR. G. D. ROWLEY.

IN the 3rd Part of the 'Birds of New Guinea,' Mr. Gould remarks as follows, speaking of this species :—It differs "from all its allies in having fourteen tail-feathers instead of twelve. Only three specimens were procured by Dr. Meyer during his trip to the Arfak mountains—one old male in full livery, and two young ones. One of the latter passed into the collection of Count Turati, of Milan, and the other into that of Mr. Dawson Rowley, of Brighton, by whom it was figured. His specimen is depicted in the adjoining Plate, along with the adult male retained by Dr. Meyer for the Dresden collection, and sent over by him to England. The Plate in the 'Ornithological Miscellany' represents the bird to be a female; but I am assured by Dr. Meyer that some error must have occurred, by the displacement of the original label; for he himself dissected the specimens shot, and proved them to be males, one being adult, as before noted, and the other two immature. These had the colouring incomplete, except as regards their tails; but in size, as is often the case with young birds, they somewhat exceeded the adult. It is one of these young birds that has been figured by Mr. Dawson Rowley."

I am much obliged to Mr. Gould for detecting this difference of sex. The bird was marked as a female when it came into my hands.

He further adds:—"That this is a honey-eating Parrot I have no doubt, its general characteristics uniting it with this group of the Parrots; but its colours are strikingly anomalous. Fancy a little bird, scarcely bigger than a Bearded

Reedling (*Calamophilus biarmicus*), with a tail like that of a Minivet (*Pericrocotus*), and exhibiting a silvery tear-mark running down a cheek of smutty blue, and we have some of the peculiarities of this curious form."

The beauty of the species in a great measure consists in the markings under the wings, which Mr. Keulemans has well represented. Having sent the bird to Mr. Gould, he has now given the back of it; so that the two Plates, in conjunction, make the portrait very complete. He has also figured the Dresden adult male. The female has yet to be discovered.



J.G. Keulemans lith.

M & N Hanhart imp.

MACHÆRIRHYNCHUS NIGRIPECTUS, *Schlegel*.

MACHÆRIRHYNCHUS NIGRIPECTUS (*Schlegel*).

BY MR. G. D. ROWLEY.

MACHÆRIRHYNCHUS*. This genus first appears in the article by Mr. Gould on Australian birds (P. Z. S. 1850, p. 277), and is a member of the family of the Muscicapidæ. He thus describes it :—

“ *Gen. Char.* Bill rather shorter than the head, very much depressed and widely dilated, causing it to assume a lancet-like form ; culmen elevated, forming a distinct ridge down the centre of the upper mandible, and continued over its extremity in the form of a sharp hook ; under mandible convex ; tomia straight, the upper very slightly overlapping the lower ; rictus beset with fine but stiff bristles ; nostrils oblong, partly covered with an operculum, and seated in large and deep depressions occupying the basal half of the upper mandible ; wings short and somewhat rounded, the first quill very short, the second much shorter than the third, the fifth the longest ; tail moderate in length, distinctly graduated, the outer feather being little more than half the length of the central ones ; tarsi moderate in length and slight in structure ; toes feeble, particularly the anterior ones, the two outer toes equal in length and united from the base to the first joint, hind toe rather long ; claws hooked and very sharp.”

The genus, which Mr. Wallace calls “an exclusively Papuan one” (‘Geographical Distribution of Animals,’ vol. i. p. 411), consists of four species (vol. ii. p. 271), said to be of the “Papuan Islands and North Australia ;” while the family itself, the Muscicapidæ (vol. ii. p. 270), is set down as containing 44 genera and 283 species.

* Th. μάχαιρα, a sword, and ρύγχος, a beak.

Mr. P. L. Sclater (Ibis, April 1876, 3rd ser. vol. vi. p. 248, "On recent Ornithological Progress in New Guinea"), quotes from an English translation of Dr. Beccari's "ornithological letter," as follows :—"I have a great series of specimens of *Machærorhynchus*. There is also a violet-coloured species,"—with a footnote by Dr. Salvadori, "Probably this" (the violet-coloured one) "is a new species.—T. S."

If this is new, the genus consists of five members.

In the 'Nederlandsch Tijdschrift voor de Dierkunde,' Vierde Deel, 1873, p. 43, Schlegel thus writes respecting

"MACHEIRHYNCHUS NIGRIPECTUS.

"There are only known, up to the present time, three species of this small genus, distinguished by its very wide and depressed bill. One of these, *Macheirhynchus flaviventer* (Gould), has the front of the forehead and a streak thence over the eye yellow; the throat is white; and the black of the upper part of the head extends over the ear-coverts. This species comes from the north of Australia. Another species, the *M. xanthogenys*, G. R. Gray (P. Z. S. 1858, p. 176), inhabits the Arou Islands, and is only distinguished from *M. flaviventer* by the yellow tints of the ear-coverts. M. von Rosenberg has sent home from the Arou Islands a good series of this species. The third species, *M. albifrons*, G. R. Gray (P. Z. S. 1861, p. 429, pl. 43. fig. 1), differs from the other two in having the front of the forehead and the streak over the eye white instead of yellow. The region of the ear is yellow, as in the species from Arou. Mr. Wallace has brought this species from the islands of Papou, Waigiou, and Mysol; and we have, from our different travellers, a fine series collected at Waigiou, Mysol, Salawattie, and in New Guinea (namely, at Sorrong and the shores of Lobo Bay). M. von Rosenberg has just sent from the interior of the northern peninsula of New Guinea a fourth species, new to science, allied to the others in the general distribution of the colours, but distinguished by its black front of chest covering the crop, by its

throat being, instead of white, tinted by the same rich yellow which occupies the remainder of the underparts, by the front of the forehead being greyish, by the lores and eyebrows being brownish yellow, and by the regions of the ears being darker in the middle, also by the tail being longer and the beak more compressed.

“Wing 2 inches 2 lines, tail 2 inches 1 line, tarsus $7\frac{1}{2}$ lines, middle toe 4 lines.”

In ‘Reistochten naar de Geelvinkbaai op Nieuw-Guinea,’ door C. B. H. von Rosenberg, p. 140, we find

“MACHEIRHYNCHUS NIGRIPECTUS, Schl.

“Differs from the species found in the Papuan Islands by the following: it has a black collar across the chest, a yellow throat, greyish forehead, a brownish yellow stripe along the lores and above the eye, with the region round the eye dark-coloured; it has a longer tail, and also a somewhat more flattened bill.

“Length—wings 2 d. 2 st., tail 2 d. 1 st.

“*Hab.* Hattam.”

Perhaps my readers know the difference between a Dutch dium and an English inch, or a Dutch streep and an English line. It is about the same measurement, I believe, but by no means claim infallibility!

Mr. Gould thus describes *Machærirhynchus flaviventer* (Aves, pl. xxxiii.), P. Z. S. 1850, p. 277; also Handbook to the Birds of Australia, vol. i. p. 257:—

“Crown of the head, lores, ear-coverts, wings, and tail black, the wing-coverts tipped with white; the secondaries margined with white, and the outer tail-feathers margined on the apical portion of the external web and largely tipped with white, the white becoming less and less until only a slight trace of it is found on the central feathers; back olive-black; throat white;

line from the nostrils over each eye, the breast, abdomen, and under tail-coverts bright yellow; bill black; feet bluish black.

“Total length 5 inches, bill $\frac{5}{8}$, wing 2, tail $2\frac{1}{4}$, tarsi $\frac{1}{2}$.

“*Hab.* Cape York, Northern Australia.”

This bird has been figured also in the ‘Birds of Australia,’ Supplement.

Mr. George Robert Gray, in his list of birds obtained by Mr. Wallace in the Aru and Ké Islands, says (P. Z. S. 1858, p. 176):—

“MACHÆRIRHYNCHUS XANTHOGENYS.

“Differs from *M. flaviventris*, Gould (B. of Austr. Suppl. pl.), by having a rather larger bill, by the back being less green, and the ear-coverts being yellow instead of black.

“Length 5'' 3''', wings 2'' 4'''.

“*Hab.* Aru Islands. ♂ in British Museum.”

Again, the same author says (P. Z. S. 1861, p. 429), in his list of Mr. Wallace’s birds from Waigiou, Mysol, and Gagie Islands:—

“MACHÆRIRHYNCHUS ALBIFRONS, G. R. Gray. (Plate XLIII. fig. 1.)

“This bird is like the *M. xanthogenys*, G. R. Gray, in many respects; but it is at once distinguished by the front and streak over the eyes being white, and by the bill being rather narrower and slightly sharper in front.

“The young bird is of a yellowish olivaceous, with the front and eyebrows pale rufous; throat and breast white, the latter is waved with fuscous beneath; the rest of the body yellow, and olivaceous on the sides; wings and tail fuscous, with the coverts of the former margined with white, while the quills are margined with yellow.

“Total length 4'' 11''', bill from gape $9\frac{1}{2}$ ''', wings 2'' 4'''.

“*Hab.* Waigiou and Mysol.”

Mr. Gould has kindly lent me, for examination, a young bird in his collection belonging to this genus, from Somerset, Cape York.

This specimen clearly has no reference to *M. nigripectus*. It has a shorter tail; the yellow is faint; the back is yellow; the outer edge of the first two primaries is white, in the others it is yellow; the throat is white; nevertheless it has *black spots on the chest*.

To what species, then, does this example belong? It perhaps may be the young of *M. flaviventer*. Now Gray says that in the young of *M. albifrons* the breast is waved with fuscous. It is not, perhaps, impossible that the immature dress of all the four species may have more or less markings on the chest; but at present nothing is known, and my observation is not pretended to be of much value.

In the adult bird from which the Plate is taken, now in my collection, the throat is yellow, the tail long, the bill large, the back black; the outer edge of all the primaries is dusky white; the colour a much richer yellow—golden, I may say.

Mr. Wallace ('Geographical Distribution of Animals,' vol. i. p. 414), under the head of "Bright Colours and Ornamental Plumage of Birds of New Guinea" (which he calls "a teeming bird-land"), says, "One of the most striking features of Papuan ornithology is the large proportion which the handsome and bright-coloured birds bear to the more obscure species;" and "among the most remarkable forms" he classes "*Machærirhynchus*, curious little boat-billed Flycatchers, and *Todopsis*, a group of terrestrial Flycatchers with the brilliant colours of *Pitta* or *Malurus*."



J.G.Keulemans del

Mintern Bros. imp.

TRICHOGLOSSUS MUSSCHENBROEKII. *von Rosenberg.*

TRICHOGLOSSUS MUSSCHENBROEKII

(*Von Rosenberg*).

BY DR. OTTO FINSCH, C.M.Z.S.

(Plate XLIV.)

Nanodes musschenbroekii, Rosenb. in litt., Schleg. Nederl. Tijdschr. v. d. Dierkunde, vol. iv. (1871)
p. 34; id. Revue Mus. des P.-B. *Psittaci*, 1874, p. 52.

Figura nulla !

Male.—Upper surface and sides of neck dark grass-green ; front and forehead light grass-green, margin of front runs into yellowish green ; vertex, occiput, and nape yellowish olive-brown, with olive-yellow shaft-stripes on the vertex ; lores greenish yellow ; cheeks grass-green, with lighter yellowish-green narrow shaft-stripes ; throat and crop, and a broad longitudinal area along breast and vent, splendid scarlet-red ; sides yellowish grass-green, the under tail-coverts lighter, with the pale red of the base somewhat apparent ; lower wing-coverts, axillaries, and the inner web of the quills to about the apical third bright cinnabar-red ; outer web of quills dark green ; four middle tail-feathers dark grass-green, the remainder only on the outer web, on the inner scarlet, broadly tipped with yellow ; bill yellow, in the living bird reddish orange ; feet blackish, alive yellowish flesh-coloured ; eye citron-yellow.

The female differs only in having the feathers of the throat and crop grass-green, with pale cinnabar-red apical margins, giving these parts a somewhat undulated appearance.

	Long. al.		rectr. intern.		rectr. extern.		culm.	Alt. rostr.
	in.	lin.	in.	lin.	in.	lin.	lin.	lin.
Male . . .	3	11	3	4	1	10	6½	7
Female . . .	3	9	2	11	1	7	6	6½

This wonderful brush-tongued Parrot is a discovery of the well-known Dutch traveller, Baron von Rosenberg, who sent over three specimens to the Leyden Museum from New Guinea, but without stating the exact locality.

Through the zealous and fortunate German traveller, Dr. A. B. Meyer, we learn that *Trichoglossus musschenbroekii* is one of the famous species inhabiting the Arfak mountains, on the north-western portion of New Guinea. Dr. Meyer found these birds, although rarely, near Hattam, at an elevation of 3500 feet, and collected a few specimens. Nothing is known of the habits of this species, which, by its peculiarity, makes any comparison unnecessary.

[*Note*.—The Plate is of a fine male bird in my own collection, from the locality mentioned above.

The correct spelling of the name is difficult. Professor H. Schlegel calls it *muschenbroekii*; but as “Mr. S. C. T. W. van Musschenbroek, Assistant Resident van Buitenzorg,” appears in the Almanac of the Zoological Society of Amsterdam for 1873, perhaps the latter is right, particularly as Mr. Gould says (‘Birds of New Guinea,’ part ii.) that he is the Dutch Resident at Ternate.

The same gentleman is mentioned as discovering and describing *Diphyllodes gulielmi III.*, the new Bird of Paradise, in Eastern Waigiou (P. Z. S. 1875, pp. 30, 31).

The synonymy of this species is at present short; it has not arrived at the dignity of that of the Yellow-browed Warbler (*Phylloscopus superciliosus*), viz. two and a half quarto pages. It is one of the eight Psittaci mentioned by Mr. P. L. Selater as coming from New Guinea (P. Z. S. 1873, p. 697).—EDITOR OF O. M.]

BIRDS IN BRITAIN.



J.G. Keulemans del.

CIRCUS AERUGINOSUS. Linn.
MARSH-HARRIER.

Mintern Bros. imp.

CIRCUS ÆRUGINOSUS (*Linn.*).

(Marsh-Harrier.)

BY MR. G. D. ROWLEY.

(Plate XLV.)

IN Yarrell's 'British Birds,' 4th edit. p. 131, the Editor says :—" In young birds of the year the whole of the plumage is chocolate-brown ; the feathers tipped with lighter reddish brown ; the irides then are yellowish hazel, and remain so in the females at all ages.

" In the second year the head, neck, chin, and throat become dull yellow, with occasionally a patch of the same colour on the carpus or anterior point of the wing. The figure given by Bewick represents a bird in this stage."

Messrs. Elwes and T. E. Buckley mention a specimen of a deep brown, almost black, all over (*Ibis*, 1870, n. s. vol. vi. p. 76) :—" The great variety of plumage [in Turkey] in this species is at first very puzzling, some of the very old males having the wings and tail of a bluish cream-colour, and in some cases nearly white ; Mr. Robson has a specimen whose entire plumage is of a deep brown, almost black."

The beautiful Plates in Mr. Gould's 'Birds of Great Britain,' vol. i., render it unnecessary to give the birds of the year or the second year. I have therefore had a portrait taken of a male shot by Mr. Howard Saunders, April 29, 1868, and marked "Playa de la Resina, near Seville," spoken of by him as unique, and which, by his kindness, is now in my collection. This

represents, as I think, a very old male. Mr. Saunders writes thus to me:—
 “He rose from a large field where many Marsh-Harriers breed, and where I had taken my first nest of the Purple Gallinule (*Porphyrio hyacinthus*). The bird got up out of shot, and sailed slowly over the wheat for about three hundred yards, when I marked him down. I rode carefully to the spot, as near as I could judge, and felt terribly nervous about missing him; for on the wing the contrast of the dark black, slate, white, and buff showed off to more advantage than in the present state. As it happened, I went somewhat beyond him, and he suddenly rose on my left, rather behind me; but, turning round on the ‘aparejo’ which served as a saddle, I managed to drop him. Probably he had some small prey in his clutches, and this made him settle down so soon again; but in the excitement of the moment I did not notice any thing when I picked him up. Taking those which I have myself shot and those I have seen shot by others, at least one hundred Marsh-Harriers have been handled by me from the ‘marisma’ alone; but I never saw any thing like this one anywhere. It must be remembered that the Marsh-Harrier is abundant in all *suitable* localities in the southern portion of Spain; but in the marshes of the Guadalquivir it absolutely swarms, and is a great pest from its egg-robbing propensities.”

In ‘The Ibis,’ Jan. 1871, 3rd ser. vol. i. p. 64, Mr. Saunders remarks:—
 “Specimens in my collection, selected from a large series, run somewhat smaller and darker than the average from Northern and Eastern Europe.”
 He adds the Spanish names—“Milano,” “Arpella.”

Again (Ibis, April 1873, 3rd ser. vol. iii. p. 232):—“The identification of the females and immature birds of the genus *Circus* has caused a good deal of perplexity.” Of the four species found in Europe, “there is little danger of mistaking *C. æruginosus* (Linn.) in any stage; but the outer webs of the second, third, fourth, and fifth primaries are emarginated.” *C. cyaneus* (Linn.), the same. “This formation of the fifth primary would appear to be characteristic of nearly all the Harriers. . . . As regards the two remaining European species, *C. swainsonii*, Smith (*C. pallidus*, Sykes), has the second,

third, and fourth primaries, but not the fifth; and the same holds good of *C. cineraceus*, Mont." *C. cyaneus* cannot be confounded with either of these two species; in the formation of the fifth primary it stands apart. "In *C. swainsonii* the emargination of the second primary begins on a level with the wing-coverts, so that the bulge or widening of the outer web is almost or entirely hidden; but in *C. cineraceus* this emargination commences nearly or quite an inch below the line of these coverts, and the bulge is visible at a glance."

"Bonaparte separated from *C. æruginosus* the Harriers with a facial disk, like the three species in question, and erected them into a genus, *Strigiceps*; but it is doubtful whether the fact of the fifth primary being of a different shape in *C. swainsonii* and *C. cineraceus* is not a still better generic distinction, although not a good one to my mind; at all events it seems to weaken the generic value of *Strigiceps*."

Mr. A. B. Brooke (*Ibis*, April 1873, 3rd ser. vol. iii. p. 154), "on the Ornithology of Sardinia," says:—"Round about Oristano these Harriers swarm. A nest I found in the end of April was built in the middle of a reedy marshy lake, placed halfway up the stems of the reeds, just clear of the water; the bottom was formed of rough coarse sticks, and the interior of dried matted rushes, in some cases with their roots attached, the egg lying carelessly in the middle. Out of all the numbers that passed under my notice, I never observed any (excepting in the dark brown plumage) with the yellow head, a few showing buff markings more or less on the scapulars."

Captain G. E. Shelley, "on Egyptian Ornithology" (*Ibis*, Jan. 1871, 3rd ser. vol. i. p. 45), states thus:—"Met with throughout Egypt and Nubia, but by far the most abundant in the Delta. I cannot pass over this species without a remark upon a fine series of seven specimens which I brought back, in the many varied stages of adult plumage, with grey wings and tail, all of

which proved to be males by dissection, from which it would appear that the females do not so readily attain that peculiar stage of plumage, if they do so at all. My specimens vary extremely among themselves : one has the head and chest cream-colour, marked with longitudinal spots of rufous brown, and is an extremely handsome pale specimen from Damietta. Another one, from Nubia, is of a general dark brown colour, head and shoulders varied with buff, tail entirely grey, and wings well marked with the same colour, the underpart of the wing of a deep brown, very sparingly marked with buff; while in my other six specimens the same part of the wing varies from pure white to very pale cinereous brown. My Nubian specimen was a diseased bird."

Captain L. H. Irby, "on Birds observed in Oudh and Kumaon" (Ibis, 1861, vol. iii. p. 220), remarks that it is "most abundant during the cold season near all swamps and jheels. It is very annoying to the wildfowl-shooter, driving up the ducks, but never seems to catch any but wounded ones. The adult birds are more frequently seen than the immature."

Mr. Thomas Ayres, in "Birds of the Trans-Vaal Republic," communicated by Mr. John Henry Gurney (Ibis, April 1871, 3rd ser. vol. i. p. 147), speaks thus :—"A male was shot by myself in December 1869. I have never seen one before or since; so that it must be decidedly scarce in the neighbourhood of Potchefstroom. [This is the only specimen of *C. æruginosus* which I have seen from any locality south of the equator; the specimen sent appears to be a bird of the year.—J. H. G.]"

Mr. R. Swinhoe (Ibis, July 1874, 3rd ser. vol. iv. p. 268) "procured this species at Swatow, Amoy, Formosa, and Hainan in the brown dress, sometimes with whitish head, but never with the mature greyish-blue wings."

Lieut. W. V. Legge, writing on the birds of Southern Ceylon, says (Ibis, Jan. 1874, 3rd ser. vol. iv. p. 10) :—"Of Circinæ, the only two species that are common are *Circus swainsonii* and *C. æruginosus*; both affect, by choice, swampy lands and paddy-fields. The latter bird arrives in the south in the middle of October, and is very numerous close to the town of Galle. An exceedingly interesting series thus fell into my possession, from the white head to the adult grey wings and black primaries. I have not met with any birds entirely brown. The next stage of plumage to the buff-white head is the beautiful buff-marked least wing-coverts, which are accompanied by the golden iris and yellow cere and feet of the adult. During the north-east-monsoon rains, in December, these birds feed much on fish in the flooded flat lands of the south. I have shot them devouring large 'lulu' fish, more than a pound in weight."

Mr. Allan Hume ('Stray Feathers,' vol. i. 1873, p. 160) observes :—"The Marsh-Harrier was excessively common, both along the great rivers of the Punjab and Sindh and about all the inland waters of the latter province. . . . In Southern Sindh we never saw it. Adults of this species were very rare; indeed I cannot be certain that we ever even saw any; and we certainly shot none."

Mr. R. Bowdler Sharpe ('Catalogue of the Accipitres in the British Museum,' 1874, p. 70) states thus :—"Both sexes appear to be alike when young, and to pass through the same changes till the adult stage is reached. The latter may be known by the bluish-grey wings and tail. Adult female slightly larger than male; total length 23 inches, wing 17, tail 11, tarsus 3·8. Total length of male 22·5 inches, culmen 1·55, wing 16, tail 10, tarsus 3·4.

"*Hab.* Europe generally, seldom north of 60° N. lat.; rare in Siberia, but occurring in China, Japan, and the Philippines in winter, as well as the whole of India and N.E. Africa, occurring at that season in S. Africa also."

Mr. W. Thompson says ('Birds of Ireland,' vol. i. p. 78):—"This species appears" to be "of more frequent occurrence in Ireland than in Scotland. At the commencement of the grouse-shooting season, many years ago, a late nest was found on the ground among the heath on the mountains of Mounterlowny, in Tyrone, by an old sporting friend. He has often seen the Marsh-Harrier 'quarter' its ground like a setting dog, as the Hen-Harrier is well known to do, and considers his performance in this way equal to that of the latter species."

The egg-eating propensity of *Circus æruginosus* may have raised the ire of keepers, and been one cause of its extermination.

Mr. Howard Saunders relates a case of this (Ibis, 1869, n. s. vol. v. p. 178) in the marisma near Seville:—"A promising marsh, over which more than a score of Marsh-Harriers were hovering, lay in the way; and we had not worked it long when a fine Purple Gallinule (*Porphyrio veterum*) rose heavily from under Manuel's feet: and next instant a shout of 'Nido de Gallo-azul y tres huevos' brought me floundering through mud and water knee-deep to the spot. . . . I had left one of the eggs of the Gallinule, in hopes that the bird might lay more; and on my return I was concerned to see a Marsh-Harrier hover and finally settle down just over the site of the nest. Pushing my way to the spot, I fairly ripped the robber open with a charge of large shot, finding her bill still dripping with the yelk of the precious egg, worth more to me than all the Harriers together."

Mr. R. C. Beavan says (P. Z. S. 1868, p. 398), in his article on Indian Raptores:—"I shot this bird in the Maunbhoom district, in the act of stealing the eggs of the common Speckled Dove (*Turtur suratensis*) from a nest in a sâl tree (*Shorea robusta*)."

Mr. Gould, in 'Handbook to the Birds of Australia,' vol. i. p. 59, quotes Mr. White as authority for making eggs the food of *Circus assimilis*, the representative form in that country.

The Editor of the 4th edition of Yarrell gives a dreary list of the counties in which *Circus æruginosus* has ceased to be—those of Wales, Suffolk, Cambridgeshire, Huntingdonshire, Lincolnshire, and from Yorkshire northwards!

We may lament these things; but the remedy is not easy to provide.

Mr. A. Anderson says (P. Z. S. 1872, p. 78, “on the Raptorial Birds of India”) it is “obtained in every variety of plumage, including a uniform dark brown, nearly black, with pale fulvous nuchal spot. This variety is extremely rare.”

This dress will perhaps never again be seen in England.

The Rev. Richard Lubbock, in the ‘Fauna of Norfolk,’ 1845, p. 14, relates a different state of things. The Marsh-Harrier “might, twenty years back, have been termed the Norfolk Hawk; it was so generally dispersed among the broads. Almost any pool of any extent had its pair of these birds; they consumed the day in beating round and round the reeds which skirted the water: this was done for hours, incessantly. All the birds wounded by the sportsman fell to the share of the Moor-Buzzard; he was, as it were, the *genius loci*, the sovereign of the waste. Sir T. Browne represents it as occasionally carrying off the young of the otter to feed its nestlings with. In decoys this is a most troublesome bird, keeping the fowl in such continual restlessness that the decoy-man can do nothing with them.”

Again, p. 93:—“Sir T. Browne notices the constant warfare of the Moor-Buzzard with the Coots, which defend themselves by huddling into a dense body and flinging up the water.”

Mr. R. Bowdler Sharpe, in the new edition of Layard’s ‘Birds of South Africa,’ part i. p. 16, says:—“The Marsh-Harrier of Europe has only recently been identified as an inhabitant of South Africa, and is doubtless only an occasional visitant. A single specimen was procured by Mr. Ayres

at Potchefstroom, in the Transvaal, in December 1869. On the western coast, however, it has twice been procured by Señor Anchieta, at Huilla and on the Rio Coroca, in the Mossamedes district. I may add that the late M. Jules Verreaux tells us that it had occurred to him at the Cape during his fifteen years' sojourn there."

There appears to be a tendency in several Harriers to turn black with age; and I do not regard the example in the Plate as a common melanism, but rather as an aged specimen. Feathers would seem to blacken with age, but hair to whiten. I cannot, however, lay down a rule; more experience is necessary.



J.G.Keulemans lith.

M & N Hanhart imp

1. EMBERIZA CITRINELLA, ♀. 3. ZONOTRICHIA ALBICOLLIS.
2. EMBERIZA CIRLUS, ♀. 4. EMBERIZA CIRLUS, ♀ var.

ON BRIGHTON BUNTINGS

(*EMBERIZIDÆ*).

BY MR. G. D. ROWLEY.

(Plate XLVI.)

BRIGHTON has produced not a few additions to the British ornis. Situated on a bird-road, a turnpike of avine migration, it is tenanted by an army of eyes sharpened by hunger. Many things pass under people's noses without their knowledge. I have walked in a crowded street with John Wolley, the naturalist; and on his halting, asked the reason. "I hear one of those large Bats," he answered; no one else did. I have myself been in company with several persons, and inquired if they "heard that noise;" they thought there *was* a tapping. When told that it arose from a Greater Spotted Woodpecker, every one was ready to observe.

The improved clap-nets here are now made so large, and the calls in the men's mouths are so good, that, with the aid of driving and the brace-birds, they can capture most species. They are clever at forcing and compelling the birds to enter, almost like sheep into a pen. These men have a considerable practical knowledge, moreover. They sometimes endure much hardship and take nothing.

The three following rare species have all been found outside Brighton—Little Bunting (*Emberiza pusilla*, Pallas), Rustic Bunting (*E. rustica*, Pallas), Black-headed Bunting (*E. melanocephala*, Scopoli)—the particulars of which may be found in Gould's 'Birds of Great Britain' and Yarrell's 'British Birds,' 4th edition.

Of the usual kinds, the Lapland Bunting (*E. lapponica*, Gmelin) is every now and then brought in alive, and remains in captivity. The Cirl Bunting

(*E. cirrus*, Linn.) used to be rather common, but has of late decreased in numbers. Some winters afford a large flight of the Snow-Bunting (*E. nivalis*, Linn.). In December 1873 thousands arrived; about twenty dozen were caught on Brighton Downs. One birdcatcher obtained thirty-eight at a pull of his nets (many yards long); they were taken in both clap-net and draw-net. I never remember such a flight. Very few, however, were in the white plumage.

It is not every one who can distinguish between the hen of *E. cirrus* and that of *E. citrinella*. The two are figured side by side. Both birds were killed the same day (28th October, 1868), outside this town, and are in my possession.

Messrs. Sharpe and Dresser speak thus in the 'Birds of Europe,' part v. July 1871, *Emberiza cirrus*, p. 3:—"Obs. Considerable difficulty is often experienced in distinguishing the female Cirl Bunting from the hen of the common Yellow Bunting; but in reality they are very different. Our friend Mr. J. Gatcombe, of Plymouth, suggests a crucial test, and one which, we believe, will always be found to answer; this is, by parting the feathers of the head, when the Yellow Bunting, at all ages, will be found to have the bases of the feathers yellow. In addition to this character, the colour of the rump is different in the two birds, that of the hen Yellow Bunting being bright bay, that of the female Cirl Bunting olive-brown; whilst one of the best distinguishing characteristics between the two species will be found in the colour of the least wing-coverts, which in the Cirl Bunting are conspicuous olive-green at all ages."

The third specimen of the Emberizidæ figured is a remarkable variety of *E. citrinella*, taken (October 9th, 1875) in a clap-net outside Brighton. The colours are very peculiar; and Buntings appear to run less into abnormality than others. This very curious bird displays a dark tint all through the plumage. Mr. Robert Gray mentions a similar instance of a melanoid variety of *E. citrinella* ('Birds of the West of Scotland,' p. 131). The name "*cirrus*," printed below the figure, is a mistake.

ZONOTRICHIA* ALBICOLLIS, *Bonap.*

(The American White-throated Sparrow.)

BY MR. G. D. ROWLEY.

(Plate XLVI.)

THE bird figured in company with the Buntings was exhibited by me at the Zoological Society, June 4, 1872. It is a female, now in my collection, which was captured "alive in a clap-net on the 22nd of March, 1872, at Beven Dean, near Brighton, by a man catching Yellowhammers (*Emberiza citrinella*), with which the *Zonotrichia* was in company. One previous occurrence of this species in Great Britain has been already recorded in the Society's 'Proceedings' for 1870, p. 52." This was the Aberdeen bird, of which Professor Newton took charge; and the following account of it appears in 'Birds of the West of Scotland,' by Robert Gray, p. 138:—"A female specimen of this North-American bird was shot near the Broadhill, on Aberdeen Links, by Alexander Mitchell, on the 17th of August, 1867, and forwarded to me a few weeks afterwards by Mr. Angus, to whom Mr. Mitchell had presented it. In March 1868 a notice of the occurrence was communicated by Mr. Angus to the Natural-History Society of Glasgow; and a full description of the plumage, with other details, was afterwards published in the 'Proceedings' of that Society, accompanied by a Plate containing two figures which Mr. Sinclair had drawn for this

* From ζώνη, a band or belt, and θρίξ, τριχὸς, hair.

work. Mr. Mitchell was attracted in this instance to the movement of the bird as it sat perched upon a whin bush, jerking its tail; but a less observant eye might have failed to notice the peculiarity."

The uncoloured plate to the article which appears in Mr. Gray's work has considerable spirit.

This is not a British bird; yet I am forced to regard it as one in Britain. Recent authors have, in my opinion, when they ejected these American wanderers from the ornis of our isles, acted well and wisely.

For a bird to be blown by a gale across from the New World to the Old is a matter which falls within the belief of ornithologists. Puck only took forty minutes to circumnavigate the earth; and that elfin boy never heard of a telegram. Though unable to race with Puck, a wind-driven *Zonotrichia* might get to our shores.

Messrs. S. F. Baird, T. M. Brewer, and R. Ridgway, in their 'North-American Birds,' vol. i. p. 574, state as follows:—

Sp. Char. Two black stripes on the crown, separated by a median one of white. A broad superciliary stripe from the base of the mandible to the occiput, yellow as far as the middle of the eye and white behind this. A broad black streak on the side of the head from behind the eye. Chin white, abruptly defined against the dark ash of the sides of the head and upper part of the breast, fading into white on the belly, and margined by a narrow black maxillary line. Edge of wing and axillaries yellow. Back and edges of secondaries rufous brown, the former streaked with dark brown. Two narrow white bands across the wing-coverts. Length 7 inches, wing 3·10, tail 3·20. Young of the year not in the collection.

Hab. Eastern Province of North America, to the Missouri. Breeding in most of the northern United States and British Provinces, and wintering in the United States almost to their southern limit.

“Female smaller, and the colours rather duller. Immature and winter specimens have the white chin-patch less abruptly defined, the white markings on the top and sides of the head tinged with brown. Some specimens, apparently mature, show quite distinct streaks on the breast and sides of the throat and body.

“Sir John Richardson states that they reach the Saskatchewan in the middle of May, and spread throughout the fur-countries, as far at least as the 66th parallel, to breed. He says that he saw a female sitting on seven eggs, near the Cumberland House, as early as June 4th. The nest was placed under a fallen tree, was made of grass lined with deer's hair and a few feathers. Another, found at Great Bear Lake, was lined with the setæ of the *Bryum uliginosum*. He describes the eggs as of a pale mountain-green, thickly marbled with reddish brown. When the female was disturbed, she ran silently off in a crouching manner, like a Lark.

“At Columbia, S. C., Dr. Coues found these Sparrows very abundant from October through April. They sing more or less all winter, and during the last few weeks of their stay are quite musical. Mr. Audubon says this bird visits Louisiana and all the southern districts in winter, remaining from November to March, in great numbers. They form groups of from thirty to fifty, and live together in great harmony, feeding upon small seeds. At this time they are plump to excess, and are regarded as a delicacy.” Plate xxvi. contains a good figure of the head of *Z. albicollis* ♂ ad., with others of the same genus.

Elliott Coues says (in ‘Birds of the North-west, Handbook,’ p. 152):—
“Audubon's account is too faithful and too vivid to ever grow out of date. . . .

“How it comes and how it departs are quite unknown to me. I can only say that all of a sudden the edges of the fields bordering on creeks or swampy places and overgrown with different species of vines, sumac bushes, briars, and the taller kinds of grasses appear covered with these birds. They are constantly moving up and down among these recesses, with frequent

jerkings of the tail, and uttering a note common to the tribe. From the hedges and thickets they issue one by one in quick succession, and ramble to the distance of eight or ten yards, hopping and scratching in quest of small seeds, and preserving the utmost silence. When the least noise is heard or alarm given, and frequently, as I thought, without any alarm at all, they all fly back to their covert, pushing directly into the thickest part of it. A moment elapses, when they become reassured and, ascending to the highest branches and twigs, open a little concert, which, although of short duration, is extremely sweet. There is much plaintive softness in their note."

Mr. Coues adds that the musical abilities of this pretty Sparrow are of a high order, though the song is notable rather for its limpid sweetness than for power or brilliancy.

HIRUNDO RUSTICA.

(The Swallow.)

BY MR. G. D. ROWLEY.

[Continued from vol. i. p. 98.]

“MARY.—Go? Must you go, indeed—again—so soon?
Why, Nature’s licensed vagabond, the Swallow,
That might live always in the sun’s warm heart,
Stays longer here in our poor north than you :
Knows where he nested—ever comes again.

PHILIP.—And, Madam, so shall I.”

TENNYSON’S *Queen Mary*, Act. v. p. 224.

ONE of the greatest pleasures a man can have is to receive the spring immigrants as they land on the south coast. No sluggard need try—unless with the Swallow, which travels by day. This satisfaction is unstained by blood, and not by pang of death produced. The dim expiring eye and the struggle of parting existence should be painful to the contemplation of even the selfish man, if he reflects that he also may have to undergo the same which he inflicts.

The arrival of these feathered flowers of air forces even the dullest person to study migration; and so, I have no doubt, thought Mopsus, who, let me remind my readers, was soothsayer to the Argonautic Expedition (as most chronographers tell, about 1250 B.C.) and knew the language of birds, an idea which probably originated thus:—He was a clever fellow,

before his age, and construed the facts which birds tell us as plainly as if they spoke. Perhaps, also, he had a talking one or two, as the mediæval witch kept her cat.

Brighton is situated on a bird-road (a person must be blind not to see that); and I was on the point of putting down a few observations on bird-roads when the third volume of the new 'Encyclopædia Britannica' arrived, containing the twin articles "on Birds" which the two Professors have, to our profit, put forth. Here I found the subject treated at length, to my great satisfaction; and what I had arrived at, after years of patient observation, I discovered to be already known to Herr Palmén ('Om Foglarnes flyttnings-vägar,' Helsingfors, 1874). It is useless to repeat the account of his nine roads; it is to be found in the above work.

Not being an admirer of modern prophets, I am reluctant to become one myself; still it is hardly rash to predict that not only will maps of bird-roads be published, but also, with most important results, of fish-roads.

No doubt fish have their regular highways in the ocean, just as we have the Great Northern Railway now, or used the Great North Road formerly, or as the Romans possessed their Ermin Street and Watling Street, which ran in the same direction.

What is the Gulf-stream?—a thing one is almost ashamed to name in this day. Not long ago this wonderful stream did every thing; now it is quite out of scientific fashion (for science has its fashions, and superstitions also). The Gulf-stream is a sea-road; the trade-winds are air-roads.

Migration, then, is not only a name, but a principle that mingles in every kind of life. Not to instance vertebrates and insects, seeds migrate; the farmer sees the thistle-seed doing so, high in air, to his detriment.

But how do birds find their way for thousands of miles across the sea? Is it by instinct? I think not. Professor Huxley has proposed the idea

that animals are automata; and though not going that length, I am of opinion that there is a great deal of force in the notion.

Can we find, then, in Nature, any case of migration constantly and regularly performed (say from the New World to the Old) without the aid of instinct? We can.

In 1869, when grouse-shooting in Skye, I obtained certain seeds which, by the kindness of Mr. W. Carruthers, of the British Museum, were found to be those of *Entada scandens*, *Mucuna urens*, and *Guilandina bonduc*, Linn. These seeds do not grow in Europe; they migrate from the coasts of America to those of Skye—a proved fact, by which, before Columbus's time, a person might have discovered the existence of land in that direction. They are brought by the Gulf-stream, and arrive without the aid of instinct.

It is true that migrating birds are not taken usually by a wind, as thistle-down, or, as these seeds, by a stream; but there is one identical fact: neither birds nor seed can return, once started they do not come back, till the journey is finished.

A bird does not fly with the wind, as one might at first suppose, because of his clothing; he must keep his feathers smooth. No lady is more particular about her dress than a bird is in keeping his plumage in order; he does not like the wind to ruffle his plumage.

To show that I am now stating a fact acknowledged by scientists, I quote the following passages from the 'History of Creation,' by Ernst Haeckel (*fas est ab hoste doceri*), translated by Professor E. Ray Lankester. Vol. i. p. 354: "Migrations are common to all organisms, and are the real cause of the wide distribution of the different species of organisms on the earth's surface. Just as men leave over-crowded States, so all animals and plants migrate from their over-crowded homes."

Here we may note that migration is divisible into four kinds, probably

produced in various ways—Temporary migration, Permanent migration, Partial migration, and Passive migration. They differ in their nature.

Now, of the first, we may select that of the Swallow (*Hirundo rustica*) as the type. This bird is not English; it is an African species which comes to us for a purpose, urged by *migratory impulse* or fever, and intends to return to its own country.

Permanent migration is when a young Eagle or Kingfisher, after the cessation of *στοργή* on the part of its parents, finds itself driven out to get its own living in a fresh country. This bird feels no *migratory impulse*. Again, when a flock of Sky-Larks on the Continent is astonished by a fall of snow, and show their alarm, they feel no *migratory impulse*; fear and hunger impel them. They cross perhaps to England; at all events they fly south before the pressure of the snow, which they are influenced by before it comes. This is still temporary migration, but without *migratory impulse*. They return; but not in a flock.

Partial migration I alluded to in Part. II. (pp. 82, 83), though I did not give it a name. No doubt there is an immense deal of partial migration; and this may arise from *migratory impulse* or other causes. Of partial migration the Goldfinch (*Fringilla carduelis*) is an instance.

Passive migration.—Of this the Skye seeds are an example; others are mentioned in Haeckel, vol. i. p. 357.

The above-quoted author proceeds thus:—"The means of transport are partly active, partly passive; that is to say, the organism effects its migration partly by free locomotion due to its own activity, and partly by the movements of other natural bodies in which it has no active share."

Again (p. 356):—"The fixed animals also (such as corals, tuberculous worms, sea-squirts, lily-encrinites, sea-acorns, barnacles, and many other lower animals which adhere to sea-weeds, stones, &c.) enjoy, at least at an early period of life, free locomotion. They all migrate before they adhere to any thing. . . . Many plants likewise enjoy it. Many lower aquatic plants,

especially the class of the Tangles (Algæ) swim about freely in the water in early life, like the lower animals just mentioned."

Again (p. 359):—"Storms may carry birds and insects across half the earth's circumference. They drop in the United States, having risen in England; starting from California, they only come to rest in China."

Compare also Darwin, 'Origin of Species,' p. 349, who says:—"Almost every year one or two land-birds are blown across the whole Atlantic Ocean from North America to the western shores of Ireland and England"*.

We see, therefore, that migration is a great mundane law which requires no intelligence, no instinct, and is performed by most organisms, high and low.

If we reflect upon this, the wonder with which we regard avine migration is greatly diminished; for that which is performed constantly and with safety, without the aid of sight, instinct, &c., may surely be accomplished with those qualities.

* One would suppose that if birds are wafted thus to England at rare intervals, other things (as insects, for instance) might be so. A very strange circumstance took place on February 20th, 1875. On this day a living locust was discovered in a well near the Race-hill, Brighton. Mr. F. Bond examined the specimen in my house, and at once perceived that it was not the common species which we find on the south coast in autumn. The identification of it proved a source of difficulty for some time; but he has now ascertained that it is *Tropidoderes cristata*, Linn., a native of Brazil. How it reached this country is, of course, a matter each may resolve according to his own fancy. I must here record my thanks for his exertions in the search. The locust is in my possession.

Though I am unable to say how this insect came to Brighton, the migration of butterflies is well known. The Rev. F. O. Morris says ('History of British Butterflies,' p. 19):—"Small white *Pontia rapæ*.—An extraordinary migration of this butterfly from France to Dover was witnessed on the 5th of July, 1846. The 'Canterbury Journal' recorded that such was the density and extent formed by the living mass that it completely obscured the sun from people on board the steamers for many hundred yards, while the insects strewed the deep in all directions. The flight reached England about 12 o'clock at noon." This is the point I wish to note:—"During the sea-passage the weather was calm and sunny, with scarcely a puff of wind; but an hour or so after the butterflies reached 'terra firma' it began to 'blow great guns' from the S.W., the direction whence the insects came."

When we take a broad view, and survey the world, things bear a different aspect. Nay, we may see migration perhaps beyond—in the Universe, in comets, stars, &c. Not, however, to soar too high, and keeping to birds, my view is that they live in a groove, and have little volition allowed them. The forces which surround them are enormous. No doubt it is a “reign of law.”

In addition, it may be said that perhaps few species are never touched by migration—certainly few in the British Isles. To one accustomed to repose immediately under an old rookery, to whom the punctuality of the morning departure and evening return is well known, to whom the midnight “caw” of the disturbed inhabitants, mingled with the dreary sound of the rustling branches, speaks (in his half-awakened state) within, of the storm raging without, to whom the arrangements of the birds in their nursery bring back the almost forgotten days of his own childhood—to such a one, perhaps, a migrating Rook seems almost as improbable as a migrating Dodo. Yet Mr. J. H. Gurney says, in ‘The Field,’ Feb. 19, 1876, p. 212:—“Flocks of migrating Rooks annually arrive on the coasts of Norfolk from across the German Ocean during the months of October and November. In the early part of November 1875 I observed that these autumnal flocks were unusually large and numerous, mingled with a considerable proportion of Jackdaws. These flocks gradually became dispersed, and by the end of the year had ceased to be sufficiently numerous to attract attention. Probably many of the birds which composed them may have passed out to the southward.” I have seen enormous streams of Rooks migrating from the mainland to the island of Mull; but the coast of Scotland is not very far distant.

That wind is the chief factor in migration, is, I think, confirmed by Mr. E. W. H. Holdsworth, in his article “on Ceylonese Birds” (P. Z. S. 1872, p. 408). “The migration of birds within and into Ceylon takes place at the changes of the monsoons. At the first indication of the N.E. monsoon

setting in, the true migratory birds begin to appear." It is too long a passage to quote. These monsoons seem to be something like our equinoctial gales.

Those who hold the opinion that birds migrate by instinct should read the convincing chapter on the way Indians travel through unknown forests (Wallace's 'Natural Selection,' p. 206 *et seqq.*), which proves that man does not possess instinct, neither can any one find his way in an *unknown* forest. I contend, then, that what man with intelligence is unable to do, birds must fail to accomplish. But birds *do* migrate with success when fresh from the nest (as the Nightingale and the young Cuckoo, the one before its parents, the other after them), and without aid from experience. No doubt; but they are carried in the way I have indicated (not quite blindly, but nearly so), like the seeds. The only alternative is a sort of miraculous and unknown instinct, unique in Nature, and a factor of an incredible kind.

But a ship does not sail always with the wind; neither does the bird. The ship is ruled by the wind; so is the bird. The bird is a sailing ship. Its tail is the rudder, and it is governed by the wind; and this is how it finds its way, just as the seeds find their way.

Urged by migratory impulse (a corporeal force), the bird starts. After it has set forth it is ruled, for the most part, by circumstances, of which wind is the chief. I am the more convinced of this from the following consideration. For perhaps forty years I have put down and made notes of the dates of the capture of birds more or less rare; and what has struck me as astonishing (the result of so much labour) was the fact that when a very scarce bird was taken at a particular place, on that very spot next year, at the same date, or nearly, you might with high probability expect to find

another of the same species*. I construe this, the result of long observation, thus:—Winds blow every year much the same; birds are hatched; young seek new dwellings; mice, insects, berries, &c. are produced suitable for the birds, which are ruled by laws to them invisible, but, with some exception, pretty nearly constant. Little instinct is brought into play; Nature keeps them in the same groove.

The bird-road on which Brighton is situated has one branch which arrives about Beachey Head from the opposite coast across the sea, and keeps rigidly to the shore till it reaches Brighton, and passes on, how far I cannot by experience say. This is probably a portion of Herr Palmén's Road A, for birds of the Palæarctic region, which, "leaving the Siberian shores of the Polar sea, near Nova Zembla, and the north of Russia, passes down the west coast of Norway to the North Sea and the British Islands."

Bird-roads have stations of refreshment, of which Heligoland is one.

Each Professor mentions a striking fact affecting migration, Mr. Parker one very remarkable point—that "the amount of pneumaticity of bones by no means follows the development of the power of flight. In the Ostrich, for example, the bones are far more extensively pneumatic than in the Gull."

Mr. Newton says:—"It has been suspected that where there is any difference in the size of birds of the same species, particularly in the dimensions of their wings, the individuals that perform the most extensive journeys are naturally those with the longest and broadest remiges,"—which he supports by examples.

* *Note*.—A remarkable confirmation of this appeared in 'The Field,' February 19th, 1876, p. 212:—"On Tuesday last Dr. Sclater read a list of additions to the Zoological Society. The most important was the White-spotted Crake (*Porzana notata*), which was captured at sea off Cape Santa Maria, Uruguay, received January 16th. The only other two specimens known are that described in Darwin's 'Naturalist's Voyage' and the one in the Museum at Paris, both said to have been taken under similar circumstances."

Length of wing no doubt adds to the power of flight, though an additional pair would not. It is possible for a bird to have four wings. Mr. St. George Mivart says ('Contemporary Review,' Nov. 1875, p. 949), in his article on likenesses, or Philosophical Anatomy, speaking of teratology or the science of monstrous births: "The feet of Pigeons or Fowls are abnormally feathered, or, as it is termed, furnished with 'boots.' These extra feathers are developed along the very parts of the feet which correspond to (*i. e.* are serially homologous with) those parts of the bird's hand which bear the wing-feathers; so that these 'boots' are plainly a serial repetition of the true wing-feathers. These foot-feathers have, indeed, been sometimes known to exceed the wing-feathers in length. Moreover they resemble the true wing-feathers in structure, and are quite unlike the down which naturally clothes the legs of such birds as Grouse and Owls. But there is a more striking correspondence still; for in Pigeons which are thus 'booted' the two outer digits (toes) become more or less connected by skin, as is also the case with the corresponding digits of the Pigeon's hand."

But though four wings are not necessary, new ones are better than old ones; and after moulting, stronger flight is acquired, very much as a ship sails faster after having its bottom cleaned. Accordingly, Messrs. Francis Henry Salvin and William Brodrick relate ('Falconry in the British Isles,' 2nd edition, p. 87) that Mr. Clough Newcome's Merlins, about 1850, caught Larks, if their bells were taken off, constantly; but "after September, when the old Larks were fully moulted, they proved more than a match for the Hawks."

We should expect that birds must migrate more than other members of the animal kingdom, because food is admitted to be one cause of migration, and they require to feed oftenest of any (serpents, which only eat after long intervals, being the converse), and food must be sought.

Now, though I consider that when a bird is started on its voyage it is carried by wind, or, rather, guided by it (which I argue to be the case from

the well-known fact that a sudden chop or shift is fatal to multitudes, almost to extermination at times), yet some slight control may be granted; for it is manifest to us at Brighton that, on dirty nights, the travellers in the Channel seek the shelter of the shore and the protection of the land; then it is that they come low over the gas-lights of the town, or to some water on which the light shines, or to a lighthouse.

Experience proves that a very violent storm does no great amount of harm to birds, at least on the south coast. It is a succession of gales, and, as said above, sudden changes of wind, which fill the houses and areas with unhappy migrants, and causes them to seek shelter under up-turned boats and any refuge at hand. So we find Petrels in beef-and-ham shops, Woodcocks in villa-gardens, and (September 28th, 1875) such a bird as the Pied Flycatcher (*Muscicapa atricapilla*) in the Grand Hotel, with other misplacements too numerous to mention.

Take, now, an example. In a gale a strong man, at Brighton, has to cling to the rails; weaker persons are constantly thrown down. Yet the common Goldcrest (*Regulus cristatus*, K.L. Koch*) passes to and fro with great regularity, and very frequently comes into our houses; a male bird flew into my dining-room, about 7 o'clock in the morning, October 17th, 1874. How is it possible that its feeble strength could contend with a gale? Being a soft-feathered bird, it could not have the wind behind it, or its plumage would be wrong.

We all remember how this species is killed in numbers and washed ashore at times. It is caught by a sudden change of wind. When it migrates with safety it is assisted by the wind: a chain is tested by its feeblest link.

My idea about finding the way is this. The bird has as much to do with it as a man starting from London to York by the railway. He finds his way: steam conveys him; wind takes the bird. If the steam blows up, the passenger is killed; if the wind changes, the bird dies.

I look upon migration in birds &c. as analogous to the tides.

* Säugethiere und Vögel Baierns, p. 199 (1816).

Circulation is necessary in water; and we know how Nature has provided for the tides by forces: thus water is kept fit for its purposes. Movement is necessary in living things; and forces are also provided to prevent a Didine stagnation; for I look upon the Do Do (whose name most authors write wrongly) as the emblem of stagnation.

It requires not to dwell in the sanctity of the scientific circle to be familiar with the celebrated sequence of events from the cat-keeping old maid to the fertilization of clover; externs, even, have heard of that chain. The same links might easily be traced between starvation of bipeds in Seven Dials or Birmingham and the arrival of the Cuckoo or other caterpillar- and grub-eating birds, forming a stronger series.

If for one year migration should fail *in toto*, the result produced in England would astonish the charitable; for starving poor (from failure of crops, devoured by every kind of grub) would rouse the Stock Exchange, and the landowners might say to their rents, as to Marmion, "Good night."

Could we, then, get on without birds? No! and they must be sent for, like troops for the battle. New Zealand knows this, and acts upon it: she supplements nature by taking ship-loads of insect-eating species from our shores; and England has for several years past added a new item to her exports—Sparrows &c.!

The notion that the loss of the immigration of the Sylviidæ &c. into this country could possibly affect the Stock Exchange might appear to some minds simply ludicrous; to mine no Q. E. D. was ever more certain or easier of perception.

COTURNIX DACTYLISONANS.

(The Quail.)

BY MR. G. D. ROWLEY.

EVERY one has heard of the three Quails of Steenwyk, which saved that city (the key to the province of Drenthe) when besieged by Count Renneberg, on behalf of Philip II., in 1581. Protestant Quails they might be called in real truth. Very small agents cause great events; for the three being found in the public square were said by the Commandant to be typical of the Trinity, and as Quails had saved the Children of Israel, so now in three weeks (if they only held out) would relief come, which these Quails indicated. And surely enough that valiant Colonel, John Norris the Englishman, *did* arrive with six thousand Dutchmen and British. Most opportune Quails were those three of Steenwyk, more so than the loyal Larks of Exeter even (*cf.* Yarrell's 'British Birds,' 4th edit. p. 619). John Lothrop Motley, in the 'Dutch Republic' (vol. iii. p. 374), tells the tale.

Hollinshed, in his 'Chronicles' (vol. i. chap. ii. p. 374), enumerates, among others, "the Quaile (who onelie with men are subject to the falling sicknesse)." A curious notion.

I have a sitting of eight Quail's eggs, taken just outside Brighton (June 15th, 1875), and have seen others. But the bird is not common in the county; for Mr. A. E. Knox states ('Ornithological Rambles,' p. 170) that "it is only an autumnal migratory visitor to Sussex."

On December 14th, 1846, with ice and snow upon the ground, a Quail rose and was killed when I was shooting in the Holts, S. Neots, Huntingdonshire ; it was a young bird, $3\frac{1}{2}$ oz. in weight, and had no patch on the throat.

The remarkable black throat, sometimes observed, is figured in Part II. p. 90.

Lord Lilford, speaking of the Booted Eagle (*Aquila pennata*) (Ibis, 1865, n. s. vol. i. p. 174), observes thus :—"The natives told me that this Eagle is the scourge of the Quails, which abound in Andalucia."

Shaw says of our bird (Gen. Zool. vol. xi. Aves, p. 363) :—"In China they are extremely abundant and, like *Coturnix excalfactoria*, are used by the inhabitants to warm their hands." He also notices the story that Augustus put the Prefect of Egypt to death for bringing to his table a Quail which had fought well in a battle with another.



J.G. Keulemans del

Mintern Bros imp.

CHEN ALBATUS.

CHEN ALBATUS.

(Cassin's Snow-Goose.)

BY MR. G. D. ROWLEY.

(Plate XLVII.)

By the kindness of Mr. Howard Saunders, his specimen of this Goose has been added to my collection. To his discovery we are indebted that it and the companion bird did not escape notice. Mr. Dresser has given a fine plate of the male in the 'Birds of Europe' (part xix.), which he has contrasted with an adult female of *Chen hyperboreus*, Boie.

This bird, with the male now in Mr. Dresser's museum, were both shot by a boy on the Lake of Tacumshane, on the south coast of Wexford, Ireland, in November 1871; and the present illustration by Mr. Keulemans, together with that in Mr. Dresser's work, enable the public to see both these interesting specimens—the first ever known to have been taken in Great Britain and Ireland, but abundant in some other parts of the world.

Spencer F. Baird says ('Birds of North America,' p. 761):—"I have not the means of testing the validity of Mr. Cassin's new *Anser albatrus*, which is said to differ from the common species in smaller size, shorter bill, &c. In the very great variations of size and proportions in the Geese, *I can scarcely believe that the grounds of distinction as announced are sufficient* in the present case to make two species. . . .

"The name *cærulescens* has priority of date over *hyperboreus*, and (if the species are the same) should be used, but for the fact that the adult bird is not bluish, but white, thus conveying a false impression respecting it."

Professor Newton remarks (in the ‘Manual of the Natural History, Geology, and Physics of Greenland and the neighbouring Regions; prepared for the use of the Arctic Expedition, 1875. Published by the Royal Society and by authority of the Commissioners of the Admiralty’) on *Chen hyperboreus* (Snow-Goose):—“A few young birds only had been seen, and these more frequently in the Northern Inspectorate than in the Southern. Is found also on the west coast of Davis Strait. Probably breeds in the far north; but a doubt may perhaps be entertained whether the examples killed in Greenland belong to the true *C. hyperboreus* or to *C. albatus* (*if these be really distinct*), which is said to have occurred in Ireland.”

Mr. Bernard H. Ross (Nat.-Hist. Rev. 1862, p. 286) as follows:—“There can be little doubt of the existence of three species of Snow-Geese (exclusive of the Blue Wavey, of Hudson’s Bay), as the Slave-Lake Indians have a different name for each kind. The first which arrives is the middle-sized species, which I believe to be *A. albatus*; next comes the smallest sort, the *A. rosii*; and last the *A. hyperboreus*, which appears when the trees are in leaf, and is called the Yellow Wavey by the Indians.”

Now this passage is exactly what I should expect to find. The above birds follow a migratory rule, a canon of migration, which is *commonly* (I have not experience enough to be able to say *invariably*) this:—In birds which do not attain maturity till two or more years (and which may or may not breed before they have arrived at it), the adolescent birds of both sexes flock together, keep apart from the others, and migrate together by themselves—sometimes first; the adult birds come also in flocks, probably each sex by itself, and usually arrive last.

As a rider to the above I would add:—In birds which attain maturity the first year, the cocks very frequently migrate first, and then the hens.

Therefore an application of the above canon to the Geese would bring them to the notice of the Indians as described by Mr. Ross.

Brisson says, in his 'Ornithologia sive Synopsis Methodica' (vol. vi. p. 288, *Anser niveus*):—"Æstate nunquam in conspectum veniunt hujus speciei Anseres; hyeme autem gregatim volant."

In addition to the above we must remember that all adult birds do not breed every year, for various causes. Barren birds, as every keeper knows, are very common in *Perdix cinerea*. In Wood-Pigeons (*Columba palumbus*) it is an ordinary thing to find flocks of non-breeding individuals. Disease also may have more effect than we have discovered; for the particular female affected by it looks well, and when both sexes have the same dress no difference of plumage may be noticed. Non-breeding birds, according to my belief, flock together and migrate together.

Moulting governs the period of migration in some degree, as it is plain that a migrating bird wants all his feathers. One that has to breed and moult before migrating has enough to do to get through its work; in fact, Swifts have not time always to finish the first before starting, to say nothing of the latter.

Edwards ('List of Birds,' pl. 252) figures the Blue-winged Goose. Gray (in his 'Genera,' vol. iii.) makes *Anas cærulescens*, Linn., the same as *A. hyperboreus*, Pallas: I suppose "*Anas*" should be "*Anser*." Baird does the same. Mr. Dresser makes *Chen cærulescens*, Gmel., of Audubon, a distinct species from *Chen hyperboreus*, concerning which I have nothing to say at present. Audubon (in my 8vo edition, 1840, 7 vols.—a much better one than the later of 8 vols.) figures two Snow-Geese, adult and young female (vol. vi. pl. 381).

Edwards (vol. i. p. 152) remarks upon the Blue-winged Goose:—"My friend Mr. Light has told me there is a Goose which comes in summer to Hudson's Bay, having its forehead, as it were, scorched with heat, and that the natives firmly believe that these Geese, to avoid the winter's cold, fly

towards the sun and approach so near that it singes its forehead against his orb."

Looking at Audubon's plate of his adult male, the ferruginous head has just the appearance indicated by the Indians. He says :—"I am unable to inform you at what age the Snow-Goose attains its pure white plumage, as I have found that a judgment formed from individuals kept in confinement is not to be depended upon. In one instance, at least, a friend of mine, who had kept a bird of this species four years, wrote to me that he was despairing of ever seeing it become pure white. Two years after, he sent me much the same message ; but at the commencement of the next spring the Goose was a Snow-Goose, and the change had taken place in less than a month. The Snow-Goose feeds on rushes, insects, and (in autumn) on berries, particularly those of the *Empetrum nigrum*. It is said that the young do not attain the full plumage before their fourth year ; and until that period they appear to keep *in separate flocks*. The young birds of this species begin to acquire their whiteness about the head and neck after the first year ; but the upper parts remain of a dark bluish colour until the bird suddenly becomes white all over ; at least, this is the case with such as are kept in captivity."

Again :—"There can be little doubt that this species breeds in its grey plumage, when it is generally known by the name of Blue-winged Goose, as is the case with the young of *Grus americana*, formerly considered a distinct species and named *Grus canadensis*."

The ferruginous tinge on the head of the Snow-Goose (*Chen hyperboreus*) is also observable in the Mute Swan (*Cygnus olor*) and Bewick's Swan (*Cygnus minor*).

Is, then, the notion of the Indians, as mentioned by Edwards, only an exaggeration of the fact that exposure to the sun has tinged the head of the bird with brown ? or does the stain arise from aquatic plants or sand ?

Mr. H. Stevenson (*Ibis*, April 1876, 3rd ser. vol. vi. p. 276) gives us a most capital letter on this very thing. It should be read. The result

appears to be that "the rufous tint is produced by contact with ferruginous sand."

In Swainson and Richardson's 'Fauna Boreali-Americana,' p. 467, it is stated of the Snow-Goose (*Anser hyperboreus*, Bonap.) that the young are numerous at Albany Fort, in the southern part of Hudson's Bay, where the old birds are rarely seen; and, on the other hand, the old birds in their migrations visit York Factory in great abundance, but are seldom accompanied by their young."

George Shaw, M.D., in his 'General Zoology,' p. 34, says of the Snow-Goose (*Anser hyperborea*):—"In Siberia they form an essential article of subsistence to the natives, each family, it is said, preserving thousands annually, which, after being plucked and gutted, are thrown in heaps into holes dug for that purpose and covered only with earth; the mould freezes, and forms over them an arch; and whenever the family have occasion to open one of these magazines, they find them sweet. According to Pennant's account, the Siberians place near the banks of the rivers a great net in a straight line, or else form a hovel of skins sewed together. This done, one of the company dresses himself in the skin of a white reindeer, advances towards the flock of Geese, and then turns back towards (on all fours) the net or hovel; and his companions go behind the flock and, by making a noise, drive them forwards. The simple birds mistake the man in white for their leader, and follow him within reach of the net, which is suddenly pulled down, and thus captures the whole. When he chooses to conduct them even into the hovel, they follow in the same manner. He creeps in at a hole left for that purpose, and out at another on the opposite side, which he closes up. The Geese follow him through the first; and as soon as they are in, he passes round and secures every one of them."

Mr. Dresser ('Birds of Europe,' part xix.) says of *Chen albatus*, Cassin's

Snow-Goose, that it differs *principally, if not only*, in size from *Chen hyperboreus*.

Here, then, Baird, Professor Newton, and Mr. Dresser all speak with more or less doubt. A difference in size, when taken alone, is not quite a safe ground on which to found a species. On the south coast we have two races of Wheatears (*Saxicola ænanthe*), the smaller and the larger. The smaller migrate by themselves, and come first; then the larger follow. Mr. Gould gives the dimensions in his 'Birds of Great Britain,' but does not venture to create two species. In the 4th edition of Yarrell (p. 354) the Editor alludes to this great variation, but makes no new species, and holds his hand. Yet in these two races there is a positive, constant, though slight difference of plumage as well as of size.

I could mention other instances; and those who have had occasion to examine a series of bones of birds will confess the manifest difference in magnitude observable, and that not due to sexual causes or youth and maturity.

Mr. George Barnston, of the Hudson-Bay Company's Service (in 'The Ibis,' 1860, vol. ii. p. 253 *et seq.*), says of the Snow-Goose (*Anser hyperboreus*):—"Although playing a less conspicuous part" [*i. e.* than the Brent-Goose (*Bernicla brenta*)] "in the interior of the country, where it seldom alights except along the margins of the lakes and streams and the extensive grassy lakes of the prairies, it becomes, from its consolidated numbers, the first object of sport in James's Bay. The Indian gets fatigued at the trade of killing. In the fall, on some days when the flocks of young 'Wevois,' or Wavies, are they are called, are numerous and passing southwards, it is no uncommon thing for a good shot to send a hundred to his lodge between sunrise and sunset. He has two guns; his wife or son loads, while he attends to the motions of the Geese, and brings them round to the bush or

wooden decoys by calling, and fires as they pass. These Geese form the staple article of food for rations at the Albany Factory. They are the last to leave the coast for southern climes ; and this takes place generally towards the end of the month of September, some weak broods and wounded birds lingering to the first week of October. They are deliberate and judicious in their preparations for their long flight, and make their arrangements in a very business-like manner. They leave off feeding in the marshes for a day or more, keeping out with the retreating ebb tide, and retiring as it were by steps, unwillingly, at its flow, adjusting their feathers continually, and dressing them with their fatty oil. They are then ready for the first north or north-westerly wind that blows ; and in twenty-four hours' time the coast that had been resonant with their petulant and incessant cries, and covered patch-like by their whitened squadrons, is silent and deserted—a barren and frozen shore.

“The friendly intercourse that exists between these Geese and the Blue Wavies (the *Anser cærulescens*) has perhaps induced some to suppose that they were merely varieties ; but this is a mistake. The young White Wavies arrive from the north with their parents, without mixture of other Geese in the flocks ; and they have the same white garb as the old birds, but with the head as if it had been soiled with rust of iron, and the bill (as is well known with young birds) tender, soft, and compressible, while, on the other hand, the *Anser cærulescens* comes down upon the eastern coast, also in perfectly distinct flocks, the young birds having a more diffused and darker blue colour, as well as being of smaller size, with the beak softer and the flesh more tender. About this there can be no mistake.

“In the spring, James's Bay is frequently crossed by both species of the Wavy, at Capes Jones and Henrietta Maria ; and occasionally two or three Blue may be seen in a large flock of White on the Albany shore, while two or three White may be also observed accompanying the full flocks of Blue on the Eastmain side. But this is not singular, as their cry is almost the same, and they are certainly closely allied species—but not varieties.”

Mr. Barnston proceeds to estimate the Geese leaving the coasts east of the Rocky Mountains for their places of hibernation (exclusive of Brent Geese), and puts it down at 800,000.

As to the question of *Chen hyperboreus* being distinct from *Chen albatrus*, I think it is a matter of opinion; and though by no means wishing to be positive, I incline to the idea of the unity of the two.

The common Swan (*Cygnus olor*) does not breed till the third year; and Yarrell says (1st edit. p. 119), "in returning spring the parent birds drive away from them the young brood of the previous year, and oblige them to shift for themselves." How easy would it be, if we saw these for the first time, to make them different species!

Richard A. Proctor remarks (in 'The Orbs around us,' p. 137):—"The true man of science is seldom inclined to say either 'this or that must be so,' or 'this or that cannot be so.' His rule rather is to see whether the imagined relation has a real existence—to compare fact with fact until the reality of the relation is established or confuted."

The skin from which the Plate is taken has now been set up in a case; and we are able to say from the state of it that the owner was not a bird driven by storm, but well nourished and in fair condition. When wet, the feet appear to have a tendency to red.

If it had not been for the vigilance of Mr. Saunders, this very interesting instance of the appearance of *Chen albatrus*, Cassin, in Ireland would have been passed over. Whether it is distinct from *Chen hyperboreus* is a minor matter: species sometimes run very closely into each other; and opinions may reasonably differ. But for my own part I should think these Geese more resemble the two races of *Charadrius hiaticula*, which we have commonly on the south coast, and which are strongly marked in differences of size, period of migration, habits, &c., to which I called attention in 'The Ibis' for 1860, vol. ii. p. 101. In their case, however, authors make no disturbance of unity.



WILLIAM BULLOCK, F.L.S.

THALASSIDROMA BULLOCKII, *Fleming.*

(Bullock's Petrel.)

BY MR. G. D. ROWLEY.

THE stream of my subject in former Numbers flowed in the direction of a Duchess and an Archduchess; here it brings into presence a humbler personage, and an endeavour to perform a tardy act of justice. Because a man is poor he sometimes fails to receive his rights. I think we have an instance of it in the present case. This bird should be called by English ornithologists Bullock's Petrel, concerning which presently.

Mr. George Robert Gray says, in his 'Genera of Birds,' vol. iii. :—

“THALASSIDROMA, Vigors.

“Mr. Vigors proposed (Zool. Journ.) this name in 1825, being unacquainted with the fact that M. Boie had separated these birds under that of *Hydrobates* in 1822, which name, however, cannot be adopted, as it had previously been used by Vieillot. It embraces the Prince of Canino's subgenus *Bulweria*, which was established in 1842, and also *Oceanites* of Count Keyserling and M. Blasius, which was proposed in 1840.”

Gray gives eleven species to *Thalassidroma*, and twenty-five to *Procellaria*, Linn., “established by Linnæus in the ‘Systema Naturæ,’ 1748. Leach used *Fulmarus* in 1816; Kaup, in 1829, *Rhantistes*,” &c.

Dr. Coues says that the generic name *Thalassidroma* must be entirely suppressed, as being synonymous with *Procellaria* proper, and in its stead proposes to use *Cymochorea* (Ibis, n. s. vol. iii. p. 131).

In Jardine's Wilson (vol. ii. edit. 1832, p. 382, note) we find:—
 “*Procellaria bullockii* ought now to stand under the name of its discoverer,
Thalassidroma bullockii.”

Mr. William Thompson, in the ‘Birds of Ireland,’ writes thus (vol. iii. p. 415, note):—“Dr. Fleming, when giving the name *bullockii* to this species in his ‘History of British Animals’ (p. 136), states that, Dr. Leach having intimated to him that Temminck proposed to name the species *leachii*, he ‘remonstrated,’ but in vain, against his ‘acceptance of a compliment to which he had no claim. Mr. Selby, in the same spirit, adopted the name bestowed on the species by Fleming. If the bird were to be ‘called after’ any individual, Bullock, being its discoverer, certainly had the best right to be so honoured; but according to the stern law of priority, the term *leachii* must be adopted.”

There is no law without an exception; this should be one. Mr. William Bullock discovered the species at S. Kilda, in 1818.

Mr. William Macgillivray says (‘British Birds,’ vol. v. p. 454):—
 “Dr. Fleming named it *Procellaria bullockii* in honour of its discoverer, and ‘in order to do an act of common justice to the individual who had energy to undertake a voyage of inquiry, and sagacity to distinguish the bird in question as an undescribed species.’ Yarrell states (1st edit. vol. iii. p. 520), at the sale of Mr. Bullock’s collection in the spring of 1819 this specimen was bought by Dr. Leach and transferred to the British Museum.”

In order to compensate Mr. Bullock for the way he has been treated, I here give his portrait, taken from a print published April 8th, 1822, the only one (after long search) which has fallen under my notice, and which has the appearance of being a correct likeness.

Bullock’s rival in this matter was William Elford Leach, M.D., F.R.S.,

F.L.S., &c., born at Plymouth, 1790. This physician became Curator at the British Museum about 1817; he was much overworked, often not being in bed all night. He published the 'Zoologist's Miscellany,' among other things, and, having retired from his Curatorship from illness, died at S. Sebastiano, in Piedmont, August 25th, 1836.

An accomplished ornithologist of the present day, living in the broad glare of scientific intelligence, perhaps deeply versed in "the struggle for life, the adaptability and the hereditivity of organisms," might feel inclined to look back on such a man as Bullock with a feeling of pity, akin to contempt. But when he reflects upon what museums were in former times, and the gross ignorance which prevailed among all classes, it is only fair to allow a considerable amount of credit to a man who certainly was at some pains to raise the curtain of science, and who was more than a vulgar showman.

Take the period of the two Tradescants, father and son (both John). I extract out of 'Museum Tradescantianum' ("a collection of Rarities preserved at South Lambeth, near London," 1656), at the head of whose "Principall Benefactors to the precedent Collection" stood "King Charles, Queen Mary, George Duke of Buckingham, Lady Katherine Dutchess of Buckingham, William Laud Archbishop of Canterbury, &c." Look now at the kind of scientific pabulum put forth under their sanction:—

"Divirs sorts of egges from Turkie: one given for a Dragon's egge.

"Two feathers of the Phoenix' tayle.

"Claw of the bird Rock; who, as authors report, is able to trusse an Elephant, &c., &c.

"Dodar, from the Island Mauritius; it is not able to flie, being so big."

Would that we had this *Dodar*! The rest we could spare.

We may gather from 'Museum Leverianum' (published 1792) and the accounts of Sir Ashton Lever's Museum in the Blackfriars-Bridge Road,

London (*vide* article, *Ibis*, Jan. 1873, 3rd ser. vol. iii. p. 14, by A. von Pelzeln), that this collection of objects was a vast improvement upon Tradescant's; the appearance of it, however, in the print which fell into my hands some time back, is not imposing.

This collection, after passing into the possession of Mr. T. Parkinson, was sold in 1806.

A life of William Bullock, F.L.S., appears in 'Men I have known,' by William Jerdon (London, 1866: Routledge). From this we find that he was first "Head and Director of the Museum at Liverpool," of which "he published a catalogue in 1808."

In 1812 this collection had been transferred to London, to 22 Piccadilly.

It was not till the 27th of March, in the tenth year of the Fourth George, that the Charter of the Zoological Society was granted by that King and Defender of the Faith to five persons (Sabine, Vigors, Wall, and Lords Auckland and Lansdowne), with several others of "his loving subjects." Previously zoologists looked to Exeter Change (built 1670) and the Tower, "Henry III. being the first king who caged wild beasts there" (Mark Lemon, 'Streets of London,' p. 43).

Thus the £55,000 expended by William Bullock on the Egyptian Hall and its contents, was not laid out without a corresponding benefit to the nation.

Besides his numerous Catalogues, in 1824 Mr. Bullock published his 'Six Months' Residence and Travels in Mexico' (8vo, plates and maps).

I do not, however, propose to write his life, or even his Scotch tour. In the spring of 1819 the sale of his collections took place; and in March 1825 he started with his family and left Europe, after which I lose sight of him.

In the 15th edition of his 'Companion to the London Museum and Pantheon' (published 1813), the matter and the illustrations are by no means unworthy of Mr. Bullock, "Fellow of the Linnean Society of London, of the Wernerian Society of Natural History of Edinburgh, and Honorary Member of the Dublin Society."



J.G. Keulemans lith.

M & N. Harber. 1877.

MOTHER CAREY AND HER CHICKENS.

To both *Thalassidroma bullockii* and *T. pelagica* the epithet "Mother Carey's chickens" has been applied, concerning which Yarrell says (1st edit. vol. iii. p. 527), under head of the latter:—"These birds are supposed to be seen only before stormy weather, and therefore are not welcome visitors to sailors, who call them Devil's birds, witches, and Mother Carey's chickens—the last name said to have been originally bestowed upon them by Captain Carteret's sailors, probably from some celebrated ideal hag of that name"*.

On reference to Hawksworth (vol. i. p. 318, edit. 1773) we find that on Saturday, April 18th, 1767, "Philip Carteret, Esquire, Commander of His Majesty's sloop the 'Swallow,'" in his voyage round the world, on the coast of Chili, enters the following in his journal:—"We also saw also a great many Pintado birds, which are prettily spotted with black and white, and constantly on the wing, though they frequently appear as if they were walking upon the water, like Peterels, to which sailors have given the name of Mother Carey's chickens; and we saw also many of these."

This passage does not bear out Mr. Yarrell, usually so accurate, in his statement that the name was originally given by Carteret's sailors; on the contrary, Carteret mentions it as familiar to them and current in his time. I have in vain sought its origin, which is clearly much older than 1767.

Query, also, at what date were the birds first called *little Peters*?

Not being able to trace the pedigree of "Mother Carey," the only thing to be done is to have an illustration of herself and her work, with her brood around her.

In Ray's Willughby (1678, p. 395) we have "an Account of some Birds of the Ferroe or Ferroyer Islands, out of Hoier's Epistle to Clus."

One, "called Stormfinck, is a little bigger than a Sparrow. This is also all grey, but without spots, having a very slender bill. At the sight thereof

* See Jardine's Wilson, vol. ii. p. 283, and Hawksworth's 'Voyages,' vol. i. p. 203.

the fishermen are horribly afraid, and make to the shoar as fast as they can, being sure that there is a dangerous tempest at hand."

The author says you might call the bird Pegasus, "for that you shall to admiration see it with incredible velocity run upon the very waves, crossing of them as swift as the wind, being carried on like a storm, as its name imports. If flocks of these draw near to any vessels at sea, experienced mariners know they must presently lower their sails."

This passage would lead us to suppose that Willughby had not heard of Mother Carey. In 1760, Brisson does not allude to her name. Latham does, but spells it Cary. In 1743 Edwards knew it not, but says "I believe this tribe of birds all rest and feed on the backs of living or dead fishes that float on the sea"(!), and adds, "Mr. Albin says they are called Peterils because they imitate Peter."

I have searched some early voyages, but cannot discover any thing about Mother Carey. "The Cary family are Lords of the Manor of Clovelly, Bideford Bay, and were so *temp.* Richard II." (Murray's 'Handbook of Devon,' p. 288).

Shakespeare, in 'Macbeth,' makes his witches sail in sieves, as went also Annis Simpson, "the wise wife of Keith," 1590, in Scotland, who was quite resolved to be first strangled and then burnt, in which she succeeded, though James I. tried to save her in spite of herself, as Miss Strickland says ('Queens of England,' vol. iv. p. 32 *et seq.*).

Perhaps I ought to have placed Mrs. Carey in the traditional and historic sieve; but the broomstick looked more appropriate, and thus she does not occupy her ironclad. She is soaring over the flotsam, which, with the jetsam, are her work, and looking out for a Pilot's thumb (query, that of a Positivist?), and expressing herself thus:—

"I'll do, I'll do, and I'll do. . . .
 . . . Here I have a pilot's thumb,
 Wreck'd as homeward he did come."

Macbeth, Act i. scene 3.

The wind has no effect upon the dress of the weird old hag in the sketch. Her chickens are round her.

“No song-note have they but a piping cry,
That blends with the storm when the winds rise high;
When the land-birds wail,
They sport in the gale,
And merrily over the ocean they sail.”

As respects Petrels on the south coast of England, my observation is as follows:—We have them in spring and autumn. This looks like migration; for Saxby says the same at the Flugga lighthouse (‘Ornithological Miscellany,’ part ii. p. 134). Sometimes they come to us with gales, but more commonly without, with a north wind, to avoid a storm in the North Sea. Sailors fancy they like rough weather. No notion can be more erroneous; they much dislike it. They follow a ship because they want food and shelter, both of which it affords.

The most marvellous thing about these birds is the extraordinary power of seeing light shining on the water which they possess. They can do this at long distances. Have we any similar thing in other species? Certainly; in Larks. The oil on the sea acts like the Lark-glass (Part II. p. 89), and produces the same result; for as long as a Petrel remains within a certain distance, so surely will it come to oil on the water, and you may shoot till you have killed every one.

In confirmation I quote a letter of mine to ‘Land and Water,’ October 19th, 1867:—“On October 10th a piece of the liver of a skate was observed in the sea near the new Pier, Brighton. Out of this liver a good deal of oil floated up, on which the sun shining attracted the attention of several Stormy Petrels (*Thalassidroma pelagica*). Two or three were soon shot. They were pattering on the water and tugging away at their fish dinner, which was taken out and thrown in again. More came; they appeared to rise suddenly out of the sea, though none could be discovered around. Seven were killed.”

When they move a whelk-pot, the bait sends out oil ; and this frequently attracts Petrels, as fishermen know.

In 'The Field,' December 14th, 1872, I find in one of my letters on Bullock's Petrel (*Thalassidroma bullockii*):—"At the back of Brunswick Square, Brighton, is a small street in which stands a lamp, under the lamp a gutter, and on Thursday, December 5th, at 8 o'clock P.M., was a puddle. This puddle may reveal to us something about the laws which regulate the zoology of our planet. The lamp shone on the water. As a postman passed, though it rained and blew furiously, he saw a *Thalassidroma bullockii* alive in the gutter, which he captured and took into a house. On coming out a few minutes after, he observed another fluttering over the same spot, which he also caught, like a butterfly."

Now, these Petrels discovered the light shining upon the water in a narrow street, and came to it. This gale only began about 4 P.M. on the same day ; yet at 8 P.M. the birds had to run before it.

It is remarkable that, though my notebook has many examples of *T. bullockii* mentioned in it as taken after gales in Brighton, yet none of the smaller sort (*T. pelagica*) ever are. Thus the lesser species is able to ride out the storm, while the larger has to succumb. I have found the same thing here in Swifts and Martins ; the Martins preserve their lives, while the Swifts fail to do so. Yet one would think the stronger and larger bird would have more strength and vitality in the "struggle for existence." The fact is not so.

We are, then, not to judge by appearances only in these matters, without actual experience ; the "struggle for existence" may be maintained in a way incredible, contrary to our expectations. Take the following instance, which no man would believe unless on proved and reliable evidence. I mean that of the famous snail (*Helix desertorum*, Forsk.) in the British Museum, which, as there stated, after having been attached to a tablet for four years in the Museum, was discovered to be still living. It continued to exist two years (from 1850 to 1852) This is marked, "Egypt : C. Lamb, Esq."

In 'The Field' (December 25th, 1875, p. 728), Mr. E. L. Layard says of the Procellariidæ of the Cape :—

"These wanderers of the deep sometimes come to great grief in the fierce gales that sweep over the southern promontory. If the gale lasts a long time, they seem to fly to land for protection, and are cast upon the beach, or driven a little way inland, to die by hundreds from hunger and exhaustion. Some have been brought to me that have thus perished; and on skinning them I found them reduced to perfect skeletons, weighing only a few ounces.

"I must not forget to name here the tiny Storm-Petrels (*Thalassidromæ*) that patter along in the wake of the scarcely moving sailing-ship, or on rapid wing (and against the very teeth of the gale) course about the stern of the swift steamer as she ploughs her way through the tumbling water. All weathers come alike to them, fair or foul; they must seek their daily food, regardless of storm and tempest, sunshine or calm. . . .

"Often in moonlight nights, while standing in the bows or stowed in the jib-netting, I have seen the little black specks rise from the water as our ship stirred them from their sleep, and, dropping again out of harm's way, resettle down again for repose. . . .

"A collector will find a valuable auxiliary in getting specimens of sea-fowl in a long-handled landing-net. I have often shot these small *Thalassidromæ* from the bows when the vessel has been making very little way; and by indicating on which side of the ship they would float, a confederate has caught them up in the net. I also always travel provided with lots of *strong black thread*, and in a gentle breeze start three or four lengths flying over the stern, with a bit of lucifer match attached to each as a 'toggle.' Once let the wing of a bird touch this in its flight, and it is entangled and secured by the toggle at the end."

Mr. H. E. Dresser remarks ('Birds of Europe,' part xxvi. March 1874, *Thalassidroma leucorrhoa*, p. 6) on the Forked-tailed Petrel, "It breeds

numerously on the islands at the mouth of the Bay of Fundy, whence I have long had its eggs sent to me, and have supplied many of our British collectors" (of whom, this writer thankfully acknowledges himself one who has thus derived benefit). Mr. Dresser continues his remarks thus:—"Mr. Boardman informs me that 'this Petrel prefers the grassy islands, where it can burrow (like the Sand-Martin) under the sod; and it frequently digs under rocks, making a hole varying from two to three feet in depth. It lays a single egg in a little flat nest formed of fine grasses gathered loosely together; and frequently the bird also collects a few smooth pebbles, and places them in its nest. The young when hatched are covered with loose down, and look more like a little long-haired mouse than a bird, as neither bill nor wing are visible. During the day-time one rarely sees any of the birds at their breeding-place; and I think they feed at night; for we usually found the old birds in their holes, where they can be heard as one walks about; they utter a low note like *peer wit*, which sounds in all directions. When you seize the old bird it almost always ejects a very nasty-smelling oily matter through the nostril.'"

To understand the latter statement we must remember that "in the Petrels the nostrils are produced in a tubular form parallel to one another for a short distance along the upper part of the mandible, with the orifices turned forwards" (Owen's 'Anatomy of Vertebrates,' vol. ii. p. 131).

It is possible that the oil is sent out thus from fear, and as a means of defence.

In *Thalassidroma pelagica* the downy bird appears bigger than its parents, from the looseness of the plumage.

The Rev. A. E. Eaton, in the First Report of the Transit-of-Venus Expedition to Kerguelen's Island in 1874 (conclusion) (Ann. & Mag. Nat. Hist. Jan. 1876, vol. xvii. p. 89), tells several interesting particulars respecting Petrels, which I transcribe in full:—

"*Thalassidroma wilsoni* (Dr. Wyville Thompson, however, seems to consider the Kerguelen-Island bird to be another species) arrived in the

Sound in great numbers a few days before the 'Transit.' Towards the end of January they commenced laying their eggs generally. By the second and third weeks of February the incubation of the eggs was usually far advanced; and a day or two before we left the island, Capt. Fairfax sent me a young bird recently hatched. The tarso-metarsal joint is not elongated in the chick. I failed to find the eggs of *Thalassidroma melanogaster*; the birds occurred to me only in pairs.

"It may be well to explain that Petrels sit in their holes in pairs until the egg is laid. Then usually only one bird is found at a time upon the nest until the young are hatched; and soon after they have issued from the egg the young are found alone during the day. For whilst incubation is in progress, the bird not upon the nest is either asleep in a siding or branch of the burrow or (more commonly) is spending the day at sea; and when the young are a day or two old, both of the parents absent themselves during the day, and only return at night for the purpose of feeding them."

PART VI.

“ A little bird had whisper’d, as he stray’d
Near Pylos : ‘ To Iōlcōs go ; for thence
Shall honour spring, and modest competence,
For those who hazard ’—what, the bird said not ;
But nothing hazard, nothing can be got.”

‘ Argo, or the Quest of the Golden Fleece,’

by the EARL OF CRAWFORD AND BALCARRES, p. 11.



J.G.Keulemans lith.

M&N.Hanhart imp

PLATYCERCUS ROWLEYI, *Buller. sp. nov.*

PLATYCERCUS ROWLEYI (*Buller*).

BY MR. G. D. ROWLEY.

(Plate L.)

THE following is extracted from the 'Transactions and Proceedings of the New-Zealand Institute,' vol. vii. 1874, p. 219; and the Plate is taken from the type specimen kindly sent to me by Dr. Buller from New Zealand.

" Notice of a new Species of Parrakeet in New Zealand.

By WALTER L. BULLER, D.Sc., F.L.S., &c.

" [Read before the Philosophical Institute of Canterbury, 22nd December, 1874.]

" WHILEST I was in England superintending the publication of my 'Birds of New Zealand,' Mr. Dawson Rowley, of Chichester House, Brighton, forwarded to me for inspection the skin of a Parrakeet, received from the South Island, which, on account of its small size, he took to be a new or hitherto undescribed species. On examination it proved to be only a small example of *Platycercus novæ zealandiæ*—corresponding, in fact, with Gray's so-called *Platycercus aucklandicus*; and in returning the specimen to Mr. Rowley, I could only express my regret that he was doomed to disappointment.

" Since my return to the colony, however, my attention has been directed to a very large series of Parrakeets collected in the Canterbury Province by Mr. F. R. Fuller and his assistants; and, after making due allowance for the great variation in size which members of this genus

exhibit, I am unable to come to any other conclusion than that there really does exist another species, having similar plumage to *Platycercus novæ zealandiæ*, but so much smaller in size as to be even less than some examples of the Yellow-fronted Parrakeet (*P. auriceps*).

“The following are the measurements of a specimen in the Canterbury Museum :—

Length.	Wing from flexure.	Tail.	Bill along the ridge.	Tarsus.	Longer fore toe and claw.	Longer hind toe and claw.
in.	in.	in.	in.	in.	in.	in.
9·5	4·75	5	0·55	0·65	1	0·9

“A better idea of the relative size may be formed when I state that the bill in this bird holds an intermediate position between figs. 6 and 7, Plate VIII.*, and that the general proportions of the body bear a corresponding relation thereto.

“Mr. Fuller, who has dissected some hundreds of these Parrakeets, informs me that the bones of this small red-fronted species are easily distinguished from those of *Platycercus novæ zealandiæ*, being decidedly weaker and more slender—resembling, in fact, those of *P. auriceps* and *P. alpinus*.

“It may also be mentioned that all the specimens of the supposed new species have come from one part of the country—Canterbury North; and that, although *Platycercus novæ zealandiæ* is very common in the North Island, none of the very small examples have been recorded there.

“It being necessary to find a specific name to distinguish this diminutive form, I have much pleasure in dedicating it to George Dawson Rowley, Esq., F.Z.S., whose name is already in one way associated with the discovery, and

* [NOTE.—*I. e.* between *Platycercus auriceps* and *P. alpinus*, the heads of which are figured.—EDITOR OF O. M.]

whose interest in our local zoology has found expression in a charming little museum of New-Zealand rarities, among which the unique specimen of the Moa's egg holds a conspicuous place.

“PLATYCERCUS ROWLEYI, sp. nov.

“*Ad.*—*P. novæ zealandiæ* similis sed conspicuè minor: prasinus; occipite ad basin plumarum celatè citrino; genis et corpore subtùs flavicanti-viridibus; pileo antico, maculâ ante-oculari, alterâ supra-auriculari et plumis paucis ad latera uropygii posticis puniceis; tectricibus alarum dorso concoloribus; remigibus brunneis, alâ spuriâ latissimè ultramarinâ; primariis extus ad basin ultramarino, versus apicem angustè flavido marginatis; sub-alaribus cyanescenti-viridibus; caudâ suprâ læte prasinâ; subtùs magis flavicante; maxillâ cyanescenti-albâ, versus apicem nigricante, mandibulâ omnino nigricante: pedibus pallidè brunneis: iride rubrâ.”

Dr. Otto Finsch says (Trans. New-Zealand Institute, 1875, vol. viii. p. 201):—

“PLATYCERCUS ROWLEYI, Buller.

“As this diminutive form of *Platycercus novæ zealandiæ* will be scarcely separable from those small-sized specimens which Bonaparte called *P. aucklandicus*, I suspect that the new appellation must give way to the older, if, indeed, this lesser bird can be considered as a valid species at all.”

Having compared the type skin, kindly presented to me by Dr. Buller, with my own original specimen, I find no difference. The Plate is taken from the former.



In A. C. B. 1894. B. 100

CHALCOPHAPS INDICATA
OR "MAGNIFICENT"

Chalcophaps indica

CHALCOPHAPS INDICA (*Linn*).

(The Peace-making Pigeon.)

BY MR. G. D. ROWLEY.

(Plate LI.)

SIR J. EMERSON TENNENT remarks (in 'Sketches of the Natural History of Ceylon,' p. 258):—A Pigeon "called by the natives 'Neela-cobeya' (*Chalcophaps indicus*, Linn.), although strikingly elegant both in shape and colour, is still more remarkable for the singularly soothing effect of its low and harmonious voice. A gentleman who has spent many years in the jungle, in writing to me on this bird and on the effects of its melodious song, says that 'its soft and melancholy notes, as they came from some solitary place in the forest, were the most gentle sounds I ever listened to. Some sentimental smokers assert that the influence of the propensity is to make them feel as if they could freely forgive all who had ever offended them; and I can declare with truth such has been the effect on my own nerves of the plaintive murmurs of the 'Neela-cobeya' that sometimes, when irritated (and not without reason) by the perverseness of my native followers, the feeling has almost instantly subsided into placidity on suddenly hearing the loving tones of these beautiful birds.' "

Sir Hans Sloane appears to have entertained the same partiality; for he kept one of these Doves in a cage, as stated by Edwards (vol. i. p. 14). Edwards also figures the species (plate 14).

Mr. E. W. H. Holdsworth, on Ceylonese birds (P. Z. S. 1872, p. 467), writes thus :—"This handsome Dove is found in all parts of the island, except the north. I have met with it in cultivated districts near Colombo and in the extreme south, on the road through the forest between Kandy and Trincomalie, and at Nuwara Eliya, where at the end of the year it frequents the jungle in great numbers. It has a low rapid flight and a peculiar moaning coo more like the note of some Owls than that of a Dove. Ceylon, India, eastward to Tenasserim."

Mr. R. Swinhoe (P. Z. S. 1871, p. 348) has made some valuable remarks on the way in which the Hoopoe produces its notes and Pigeons their coo. He says :—"It is generally supposed that the song of a bird is produced by actions of the lower larynx on air passing up the bronchial tubes onwards and outwards through the main tube or trachea. The trachea of the Hoopoe is not dilatable ; but its œsophagus is ; and the puffing of its neck is caused by the bulging of its œsophagus with swallowed air. There is no connexion between the œsophagus and the trachea, and apparently no organ at the entrance of the former that could modify sound. What action, then, can this swallowed air be made to take in the production of the bird's notes? Pigeons have strikingly large air-crops, which they empty with each long coo, and refill before they coo again. Many birds swell out the throat when calling or singing, and others move it up and down ; these actions must also be caused by the swallowed air in the œsophagus, and must modify the sounds in some way as variously used, adding power and richness in some cases or giving ventriloquistic effect in others. . . . As regards Pigeons, Mr. W. B. Tegetmeier suggests 'that the dilated œsophagus and crop serve as a chamber of resonance, the air in which, being thrown into vibration, may be expelled to produce a louder sound.' "

Wishing to know more of this species, I obtained a pair of *Chalcophaps indica* from Mr. Jamrach, and they are now in my possession. I observe

that when the male utters his plaintive and sweet cry, he opens the mandibles wide ; but the swelling of the throat, if any, is hidden by the feathers. The sound is low and soft, and not too loud for a room ; so that persons who are apt to be short in temper, and are aware of the failing, might do well to keep these birds, which are at once pretty and beneficial, acting as a sedative. They appear to be gentle in disposition ; nevertheless, when the cock fights, he opens his wings and strikes with them in the manner of Pigeons. The hen makes a lower sound.

Jerdon says ('Birds of India,' vol. iii. p. 485) :—"This beautiful Ground-Dove is found throughout India in forest-countries, occasionally in well-wooded districts, as in Lower Bengal, as far as, at all events, Tenasserim. It is very partial to bamboo-jungle, and occurs from the level of the sea up to 3000 feet, or perhaps higher. It feeds mostly on the ground, often on roads in forests and bare spots under trees, walking along with a rapid motion, and allowing a moderately near approach. It is generally seen alone. The voice is a low plaintive moan, or 'lowing coo,' as Layard calls it. The eggs are said by Layard to be pale yellowish drab colour ; but Blyth says that they are merely of a less pure white than those of ordinary Pigeons or Doves. Its flight is very rapid. Caged birds are usually for sale in Calcutta ; and it soon becomes reconciled to confinement."

Jerdon gives this bird the English name of Bronze-winged Dove, which has also been applied to a member of a different genus—*Phaps* (*Phaps chalcoptera*, Lath., of Australia).

The Peace-making Pigeon seems to do well in confinement ; for I observe all the individuals (six in number) which appear in the List of Vertebrated Animals in the Zoological Gardens in 1866 were still living (in the revised list) in 1872.

Writing on the ornithology of the island of Hainan, in the China sea, Mr. R. Swinhoe remarks thus (*Ibis*, n. s. vol. vi. p. 356) :—

“CHALCOPHAPS INDICA (Linn.).

“On the 27th of February, at Shuy-wei-sze (Central Hainan), I saw and procured the only specimen of this lovely little Pigeon. It flew up from the ground, and perched on the low branch of a tree. It is an adult male, differing from the skins from India and Ceylon that I have seen, in being of a darker purple on the breast and belly, and in wanting the violet edgings to the feathers of the hind neck ; but in a series of the former I find both the tints of the underparts and the amount of violet on the hind neck variable in intensity and extent ; and I will not attempt to separate the Hainan bird on the peculiarities of a single specimen. Its wing measures 5·85 inches, its tail ·4, and its tarsus ·92.”

Mr. H. J. Elwes (P. Z. S. 1873, p. 655, “on the Geographical Distribution of Asiatic Birds”) says, of Kashmir, that it is “very poor in bird-life ;” but adds, “*Chalcophaps indica* extends thus far to the north-west.”

Again, the same writer (Ibis, n. s., vol. vi. 1870, p. 528), in his account of the ornithology of the Cardamum Hills of Travancore, speaks of “that lovely bird, *Chalcophaps indica*,” as “often seen flashing through the trees.”

This species is mentioned by Darwin (‘Descent of Man,’ vol. ii. chap. xvi. p. 185) as an instance where “the young closely resemble each other, and differ much from their respective adult parents.” He says :—“The young of many species of Shrikes (*Lanius*), of some Woodpeckers, and of an Indian Pigeon (*Chalcophaps indica*) are transversely striped on the under surface ; and certain allied species or genera, when adult, are similarly marked.”

He takes his authority from Jerdon (vol. iii. p. 485), thus :—“The young are more dusky above, with little green, and barred below, recalling, says Blyth, the colouring of *Macropygia*.”

“The female has the forehead greyish white and the supercilium narrower, the head rufescent, the lower parts browner, and the under tail-coverts more or less ferruginous ; she also wants the white shoulder-spot.”

ON THE EXTINCT BIRDS OF THE MASCARENE ISLANDS.

BY MR. G. D. ROWLEY.

(Plates LII. & LIII.)

DIDUS INEPTUS. (The Do Do.)

SITTING in a room hung round with portraits of the bird in every direction that I turn my eyes, backed up by its bones, can I be blamed for having a fit of the Do Dos?

Perhaps some one will inquire, in the language of 'The Times,' "What can be said on a text the matter of which, originally thin, has been beaten out to such tenuity as to have become almost transparent?"

The subject indeed is well worn. Nevertheless the interest is great; for nothing ever clothed in feathers, either living or extinct, has so generally and universally occupied the minds of men as the species in question. If you talk to people of size, they immediately say "Was it as big as a Do Do?" if of antiquity, "What! as old as the Do Do?" and so on; at least, that is my experience of the non-ornithological world.

In short, next to the Roc (to whose dreaded name even the purses of one hundred sequins, which Sinbad, that liberal sailor, gave to Hinbad for listening to his tales, could not reconcile me), the Do Do is the most badly used bird in existence by some persons.

But not among these alone has the "Degenerate Dove" attracted attention. Time would fail me, and space be wanting, to enumerate the authors who have devoted their pens, their talents, and their energies to elucidate the history of this highly favoured Pigeon. Following in such steps, bold indeed is the endeavour to capture and retain the attention of the readers of this work, and to direct it to the Didine quarter, perhaps harder than it was to seize and devour the unhappy victim in his native Mauritius—a consummation, alas! but too eagerly and completely accomplished.

The Mascarene Islands have been divided by Messrs. Alfred and Edward Newton (*Ibis*, 1876, 3rd ser. vol. vi. p. 281) into three groups:—" (1) The Seychelles; (2) Mauritius and Réunion (formerly Bourbon)—which, from their proximity, should be taken together, though there is much difference in the ornis of each; and (3) Rodriguez."

Mr. J. Caldwell (*P. Z. S.* 1875, p. 645), speaking of the last, says:—"Geologically, the island is very similar to Mauritius, of basaltic origin; but a large portion of the south-western part is composed of very ancient upheaved coral, abounding in fissures and caverns, large and small."

The account by this gentleman of a cavern containing bones of a Solitaire is highly interesting, and should be read.

Before saying more, it may be well to allude to the proper mode of writing the name of "the very strange fowle called ye Do Do;" and this will be best done by inserting a letter of my own to 'The Field' of October 10th, 1874, on Edwards's oil-painting in the British Museum, which bears the following inscription:—"The Do Do, and given by G. Edwards, F.R.S., A.D. 1759." On the frame is placed the *two* words "Do Do."

This separation into two parts, with capitals, as written above, was for a long time an enigma to me. Two letters, however, on the subject, in the possession of Mr. J. B. Wilmot, M.D., written from the Mauritius, June 18th, 1628, by Emanuell Altham, addressed to his brother, Sir Edward Altham,

Knt., cleared up my doubts. These letters have been well worked out by Professor Newton (P. Z. S. part iii. May & June 1874, pp. 307 & 447).

In that charming book 'The Dodo and its Kindred,' Strickland says (p. 15):—"It is not easy to determine the date when the synonymous words *Dodars* (from which our name *Dodo* is derived) and *Dronte* were first introduced." He gives Willem van West-Zanen as the "earliest apparent authority" for their use; and proceeds very learnedly to contradict Sir Thomas Herbert, who "tells us that it" (*Dodo*) "is a Portuguese word," and to prove its Dutch origin.

In the two letters above mentioned, the name *Do Do*, thus written, and corresponding with the orthography of Edwards's painting twice given, is found three times, making five distinct cases from two sources.

Emanuel Altham states as follows:—"This Iland hauing many goates, hogs, and cowes upon it, and very strange fowles called by ye *portingals* *Do Do*," &c.

The capital *D* in these letters is quite distinct from the small *d*.

Thus much for the orthography. But the ordinary pronunciation has long struck me as probably wrong. What does *Do* spell?—the verb "to do;" and it is pronounced *doo*. We say to a friend, "How do you do?" Now, if we pronounce the name, as I contend, properly, we have *Doo Doo*—a bisyllabic cry which might well be the repeated sound of a Pigeon. The instances where sailors and unlearned persons, usually the first discoverers of an animal, call it after its cry are numberless; and this onomatopœia is the most natural and convenient thing in the world, as is proved by the practice of nurses and mothers when teaching infants. Sometimes a colour is used to give a name, as "the *Blackbird*," &c.

In 'Notes and Queries' (October 16th, 1875, 5th ser. vol. iv. p. 316), a writer (Stephen Jackson), on the calls of animals, says:—"In Switzerland a horse is called 'co-co,' a cat is 'minni' or 'minno.'" He might add, a dog is a "bow-wow."

Again, who would write the name of the Carthaginian queen, "Di Do?" It would be wrong to make two words of it.

It appears to me that the "portingals," or Portuguese, hearing this Pigeon cry "Do-Do—Dodar," so named it; and, in like manner, "Dronte" may be a sound made with closed mandibles. That the Do Do did cry, we have the testimony of Volguard Iversen, a Holsteiner, in a work published first at Sleswig in 1669 (*cf.* Ibis, 1868, vol. iv. p. 479). He says that "if one caught a Dodo and held it by the leg, it cried out; whereupon others ran up to help the prisoner, and were themselves taken."

Perhaps the most quaint figure of the Do Do known, is the one in Bontekoe's Voyage (*cf.* Strickland, p. 63).

Professor Newton (P. Z. S. 1876, pp. 333, 334) is stated to have exhibited a small volume at the Meeting of the Zoological Society, April 4th, 1876, "belonging to the Rev. Richard Hooper, of Upton Rectory, near Didcot," and lent by its owner. This book was published at Amsterdam by "Abraham en Jan de Wees, Boek-verkoopers, inde 4 Evangeliste." "No year later than 1643 is mentioned in it; and the figure of the Dodo which it contains (at p. 374) is unquestionably of cognate origin with that given in the rare edition of Bontekoe's Voyage (p. 7). This edition is thought by Strickland ('The Dodo' &c. p. 63) to have been published 'a year or two' subsequently to 1646. Comparing the two figures now before you," says the Professor, "I think you will admit that the copperplate of the Pliny has not been copied from the woodcut of the Bontekoe, but the woodcut from the copperplate; and if so, the impression in Mr. Hooper's Pliny is the earliest we *yet* know of this very singular figure."

The *full name and title* of "the Pliny" can be read, by those who desire it, in the article itself.

The large beak of the Do Do was a great puzzle to early investigators of such things; and in Edwards's painting the Great Blue-and-yellow Macaw

is evidently introduced from the supposed resemblance between the two birds in this particular. One cannot fail to see that this powerful instrument had a use; and we remember the case of *Carpophaga latrans*, Peale; for Mr. E. L. Layard says (P. Z. S. 1875, p. 438), of the diet of these large Pigeons:—"I annex the size of two seeds found in the crop of one:—axis 4'', circumf. 3'' 6'''; axis 5'', circumf. 3''. This was only the hard woody part; the *pulp had been digested!* . . . It feeds upon the wild nutmeg, the large drupe-like seeds of some lauraceous forest trees, and the fruits of both the *Kaufia Pakus*."

The merit of the discovery of the proper place of *Didus ineptus* belongs to Professor Reinhardt—a laurel of his chaplet; and Messrs. Strickland and Melville made its columbine affinities known to the general public.

We can hardly look at the heavy bird without regarding it as the emblem of stagnation, though probably it was not more foolish than a vast many others. Notwithstanding the great powers of flight belonging to some Pigeons, yet a terrestrial tendency appears in others, which we may suppose to have arrived at a maximum in the subject before us. In nature there is "a principle of least action;" and perhaps we may regard this species as its type in ornithology.

Respecting the loss we have sustained in its disappearance, and the cause, Mr. Wallace says, in his great work on the Geographical Distribution of Animals (vol. i. p. 44):—"Swine, which ran wild in Mauritius, exterminated the Dodo." This, however, appears to me to be a mistake. Mr. J. Caldwell (P. Z. S. 1875, in "Notes on the Zoology of Rodriguez," p. 646), speaking of the Solitaire in that island, is of opinion that pigs did not destroy that bird. I cannot help thinking that we require to look for nothing beyond the agency of man, as in the case of the Gare-fowl (*Alca impennis*, Linn.) and probably that of the wingless birds of New Zealand (*Dinornis*)*.

* Cf. 'Transactions of New-Zealand Institute,' 1875, vol. viii. pp. 58–83, where Mr. W. T. L. Travers, F.L.S., has a most instructive paper on the extinction of the Moa, making out its ultimate destruction "to be a matter of comparatively recent date."

It is not necessary to repeat here the accounts of the way the Do Dos were put to death, given by various writers.

Mr. E. L. Layard says (P. Z. S. 1875, p. 437), of *Columba vitiensis*, Quoy & Gaim. (a large Pigeon, rather abundant on Ovalau and Kandavu, Fiji Islands), that on one occasion, on Wakaia Island, "a captain of a merchantman, and another, killed upwards of a hundred between landing one morning and departure next day." But the real cause of the slaughter of these now extinct birds was the want of fresh provisions. In former days ships were sent out without an adequate supply of food; and the crew trusted to chance, or what they could kill. When they reached an island they endeavoured to carry off all in it; thus a great deal was lost and wasted. That potent agent, hunger, did the work—man's hunger.

Unfortunately, no skin remains to display the plumage in any collection. New brooms in museums sometimes sweep too clean; and though "rust and moth do corrupt," they are perhaps less dangerous than indiscriminate zeal. Cambridge appears in former days to have had little opportunity of error, from the state of ornithological poverty in which she existed: "Vacuus viator," &c. This condition is now happily mended to a great degree by the later generosity of several individuals and the praiseworthy exertions of the authorities. Her sister Oxford has been accused of a Didine destruction which counts not in the singular but the dual number.

Jardine says ('Contributions to Ornithology,' p. 124):—"Mr. Strickland convicts Oxford of having been the grave of two Dodos. In the original autograph diary of Thomas Crossfield, extending from 1626 to 1640 is the following:—'1634. Spectacula Oxonii in hoc anno. The story divided into 5 or 6 parts, invented by Mr. Gosling, sometime schollar to Mr. Camden, enginer, who bestowed the Dodar, a black Indian bird, upon ye Anatomy Schoole, &c.' The Ashmolean Dodo was in Tradescant's private collection at Lambeth, 1656, and was not transferred to Oxford until 1683. Two

Dodos have therefore existed at successive periods in the venerable repositories of Oxford University."

In Strickland's work (p. 18) we find a facsimile of a Do Do taken from the Voyages of Pieter van den Broecke, "contained in the 'Beginnende Voortgangh der Vereen. Nederl. Geoctr. Oostind. Compagnie,' vol. ii. numb. xvi. p. 102." Thevenot ('Relations de divers Voyages Curieux,' publ. 1696) has a reversed copy of this entire plate; and I have here introduced it.

Strickland conjectures that both the birds drawn "were sketched during his (Van den Broecke's) visit to the Mauritius (mentioned in page 68), which lasted from April 19th to May 23rd, 1617." Again, "What bird Van den Broecke's other figure may be intended to represent, or from what country it came, must be left to conjecture." This was a riddle to Strickland, who died before the discovery of the picture of *Aphanapteryx bræckii* (Schleg.)—"an aberrant form of the Rallidæ."

There is, however, no need to dwell long upon a bird which has attracted so much observation as to have become almost hackneyed, though little except its portrait is known to us. To Herr Georg von Frauenfeld is the credit due of announcing the most interesting discovery of the *Aphanapteryx* painted in oil on parchment, in the private library of the late Emperor Francis of Austria (*cf.* Ibis, 1868, n. s. vol. iv. pp. 480-482).

But the point I am coming to is the difference which exists between the "Hen" of Herbert (which, by the kind permission of Mrs. Strickland, I have copied from 'The Dodo and its kindred,' p. 21, and placed below Thevenot's plate) and the companion of the Do Do in the Plate. I think that any one who observes the beaks of those two birds must agree that they represent different species.

Strickland says (p. 21):—"Sir T. Herbert also gives a figure of what he calls 'a Hen,' which is very probably intended for the same bird which

accompanies the Dodo in Van den Broecke's plate (*suprà*, p. 19)." He goes on to observe that it is probably identical with the species mentioned by Leguat as Gelinottes.

What Herbert's "Hen" may be I know not; but it clearly is not an *Aphanapteryx*, which has a curved beak; while Van den Broecke's plate represents the *Aphanapteryx* and Do Do side by side, as was natural.

Doubtless what Mr. Wallace calls "the old rostral distinction" or affinity is not much to be depended upon now as a diagnostic sign; yet the owners of those two beaks could never belong to the same species. Again, the length of the neck is quite different; and though both are apparently brevipennate birds, they have little other resemblance. The wings are unlike.

I am astonished at so good an ornithologist, as Strickland certainly was, passing over these points of divergence.

In 'The Ibis,' 1869, pp. 256–275, M. Alphonse Milne-Edwards has treated the subject of these birds with his usual ability and discernment; and he remarks (p. 274) thus upon "the 'Hen,' of which Sir Thomas Herbert has left a very imperfect figure, wherein the bill is long, straight, and pointed, instead of being curved like that of *Aphanapteryx*. There is no vestige of a tail; but it seems to have had extremely short wings. This is the bird to which Professor Schlegel has assigned the name *Didus herberti*."

Here I must complain of *the* 'Hen' being associated in the same genus with *Didus ineptus*, to which it plainly bears no affinity; it is better to refrain from placing in any position a bird of which we at present know so little: "*Didus*" is clearly wrong. Its bones may some day enable us to understand it better—a thing to be desired. In the mean time let us hold our hand.



GALLINULA (LEGUATIA) GIGANTEA.

(Plate LIII.)

In 'The Ibis,' 1866 (n. s. vol. ii.) pp. 146–168, Prof. Schlegel has an article "On some Extinct Gigantic Birds of the Mascarene Islands," and thus describes (p. 167) the one under consideration :—

"GALLINULA (LEGUATIA) GIGANTEA.

" 'Le Géant,' Leguat, Voy. ii. p. 72, fig.

" " " Du Quesne *apud* Leguat, *op. cit.* i. p. 55 (?).

" 'Straussartiger Vogel,' Hamel, Bullet. Acad. St. Pétersb. vii. No. 5 et 6 [pp. 65–96].

" 'Flamingo,' Strickland, 'The Dodo, &c.' p. 60 (note).

"Stature, six feet high. Body not heavier than that of a Goose. Wings pretty short, but fit for flight. Feathers of the tibia reaching pretty close to the tarsus. Toes long and quite free, those in front about as long as the tarsus. Upper mandible extended in a plate reaching beyond the eye. General colour white, with a reddish spot under the wing. Colour of the feet and bill unknown, but probably not very remarkable, as the description does not mention it.

"*Hab.* Mauritius, perhaps also Bourbon; once accidentally met with in Rodriguez.

"Observed with certainty only by Leguat in 1694. Since that time not remarked again, and evidently long ago completely extirpated.

"Seems to represent the Crane-type among the Waterhens."

I have now before me three authors, with a plate of this bird in each. Before, however, going into them, one cannot help remarking with what acumen Professor Schlegel assigned "Le Géant" to its true position, though at the time he wrote he only had to deal with Leguat's bad representation.

Leguat clearly took it from one of the two following :—

1. “ Liure de plusieurs Animaux Inventez par Barlou Chez De Poilly rue S. Iacque à l’image S. Benoist.”

This work, bound in vellum, contains plates of birds and other animals, some very brilliant, and finely executed; the one of Le Géant has been copied, and is here given.

From Watt’s ‘*Bibliotheca Britannica*,’ I find that not much was known of Barlow.

In the ‘*Nouvelle Biographie Universelle*’ (tome 4^{rième}, p. 518), we have as follows :—

“ Barlow (Francis), graveur à l’eau-forte, né à Cambridge en 1646, mort en 1702. On a de lui une édition des fables d’Esopé (Londres, 1666, in-fol.), ornée de 110 figures dessinées et gravées par lui. Barlow a fait d’autres sujets représentant des animaux, et entendait fort bien ce genre, auquel il s’était exercé dès son enfance (Strutt, *History of Engravers*).—Ch. Le Blanc, *Manuel de l’Amateur d’estampes*.”

Thus it appears that in 1694, when Leguat observed the bird, Barlow would be 48 years of age.

The engraving is signed “H. le Roy fecit.” Bryan’s ‘*Dictionary of Painters and Engravers*’ states that some of the plates thus inscribed have the addition “æ. 72. 1651.” This plate has no date.

2. I come now to “*Auium vivæ icones, in æs incisæ & editæ ab Adriano Collardo*,” bound in vellum, with very brilliant and clever plates.

Here the bird is represented in two attitudes; and we are able by it to add somewhat to Professor Schlegel’s diagnosis, viz. that the tail-feathers were white at the tip, the forehead also lighter; but I see no frontal plate, as Professor Schlegel does. The wing, though short, was sharp and pointed,

indicating a fair amount of flight when in the air, though Leguat says it had much trouble in rising. The words "Auis Indica" appear below the figure.

Here, then, we have in Adrian Collaert, so far as is known, the fountain-head. But where did he get his idea from? Was it from a Portuguese source? Did he ever see a living bird? Probably not. According to Bryan's 'Dictionary,' Adrian Collaert, a Flemish designer and engraver, was born at Antwerp about the year 1520. Now 1502 and 1545 have been both assigned as dates for the discovery of Bourbon and Mauritius, and Collaert's work was published in 1580; therefore between these dates the bird or drawing must have come to Europe.

Leguat, however, is the only author who saw the former, as far as we know. He states ('Voyage to the East Indies,' by Francis Leguat, p. 171; A.D. 1708):—"You shall see great flights of bitterns, and many of those Birds called Giants, because they are six feet high. They are extreamly high mounted, and have very long necks: Their bodies are not bigger than that of a goose. They are all white, except a little place under their wings, which is reddish. They have a Goose's Bill, but a little Sharper; their claws are very long, and divided. They feed in Marshy Places, and the dogs frequently surprize them, because they require a considerable time to get upon the wing: We Saw one one day at Rodrigo, and we took him with our Hands he was so fat. That was the only one we observed then, which made me inclinable to believe, he had been carry'd thither by some wind he could not resist. This game is good enough"—too good, we should say, for its continued existence, as the result proves.

THE
BIRDS OF MONGOLIA
ETC.

Pl. 6, Jan. 1877

THE BIRDS
OF
MONGOLIA, THE TANGUT COUNTRY,
AND THE
SOLITUDES OF NORTHERN TIBET.

BY LIEUT.-COL. N. PRJEVALSKY.

(Plate LIV. [I., II., III., IV., V., VI., VII., VIII., IX.])

[LIEUT.-COL. N. PRJEVALSKY, of the Russian Staff, has published his travels in Mongolia; and his work has been translated and put before the English public by E. Delmar Morgan, F.R.G.S., with an introduction and notes by Col. Henry Yule, C.B., in two vols., with maps and illustrations (Sampson Low & Co., 1876). The 'British Quarterly' describes the book as honest, thorough, solid, and conveying a large amount of scientific information; and it appears to us to well merit the praise bestowed upon it. The part relating to the birds has now for the first time been rendered into English by Mr. F. Carl Craemers, by permission of Mr. Morgan; and we place it before our readers.

The importance of the labours of the above-named Russian officer may be estimated by the fact that he brought home one thousand birds, three thousand insects, seventy reptiles, eleven fish, and one hundred and thirty skins of larger animals. In his journey he traversed nearly eight thousand miles. We have had his signature before us, and he spells his name as above.—EDITOR OF O. M.]

Order I. ACCIPITRES.

1. GYPAËTUS BARBATUS, L. *Jagatnic Borodatoy.*

This bird is called "Jolo" in Mongolia (throughout which it was met with by us, excepting in the country north of Urgey), in Kan-su, Koko-nor, and Northern Tibet. It is a resident in all the wild and rocky mountains,

and even at great heights. Occasionally it inhabits also the plains at considerable distances from any mountains, whither it goes in search of food

This beautiful Vulture flies with a silent flight, almost without moving its wings, sometimes at a vast elevation, and at others so near to the ground that even the shivering noise of the quills can be heard, which somewhat resembles the sound produced by the telegraph-wires in a slight wind.

In Mongolia proper this species is not very common, but dwells in great numbers in company with *Gyps himalayensis* in the wild mountains of Kan-su; from here it visits daily the adjacent plains of Koko-nor, where it finds plenty of food on account of the frequent deaths of wild and tame animals.

In Mongolia, and particularly in the Tangut district, the Bearded Vulture is very tame, and often sits quite close to one's tent. Repeatedly it flew past us so close that we killed it with shot; and on one occasion a bird almost carried away a stuffed hare, which was put out at the entrance of our tent to be dried. When we were putting out, in the Kan-su mountains, various things for the attraction of Griffon Vultures, the present species always came first, and carried away pieces of flesh &c. in its bill and claws to some cliffs in the neighbourhood, where it consumed them.

The principal food of this species consists of carrion; and I hardly think that it attacks any living beasts: of this we are convinced from our own observation as well as by the statements of the natives. On one occasion, however, at Koko-nor, a bird made a dash upon my setter, having mistaken it perhaps for a fox; but when it approached the dog within about ten feet, it suddenly stopped, and commenced to describe circles in the air, and I shot it. I do not know to what I can attribute this peculiar behaviour, unless it was an attempt to obtain prey. It might be only in play, or out of curiosity; most likely the latter motive prompted it.

In Kan-su and Koko-nor this Vulture feeds, in company with the Griffons, Kites, and Ravens, upon the dead bodies of the Mongols and Tanguts, which, after death, are usually thrown away in the fields.

In Ordos and Tsaidam, where the locality is level, these birds assemble

from the neighbouring mountains. They build their nests on the inaccessible rocks of Mongolia and Kan-su; and I saw in one of these nests, in the beginning of June, in the Suma-had mountains, a good-sized young bird. Close to this there was also a nest belonging to a pair of Ravens, who, in the absence of the old Vultures, stole the food from the young one. As is well known, these Vultures pass the night usually on some rock or cliff, which they regularly use for a very considerable time. Such resting-places can easily be discovered by the large amount of white guano, which can be seen a long way off. In the morning this bird does not appear to leave its resting-place before 7 o'clock; at least, we never saw one flying earlier. During the day they frequently sit near some brook, in order to drink or bathe.

On comparing my specimens with others from the Caucasus and the Altai, now in the Museum of the Academy of Sciences of St. Petersburg, I did not detect any difference in the plumage.

Measurements :—

	Length.	Width.	Wing.	Tail.	Culmen.	Tarsus.
	in.	in.	in.	in.	in.	in.
♂, from Mongolia . .	46	102	33	21·5	4·03	3·8
♂, from Kan-su . .	44	97	33	23·5	?	?

2. VULTUR MONACHUS, L. *Griff Monach.*

Like the preceding species, *Vultur monachus* inhabits Mongolia, with the exception of the northern parts of it; it is also found in Northern Tibet, but is very rare in Kan-su, and is replaced there by the succeeding one. Its habits are the same as in the other allied species.

For almost whole days this Vulture describes circles so high in the air that it cannot be seen by the naked eye. Nevertheless the bird can see, even from such an altitude, what is going on below; and having observed some carrion, round which there usually assemble great numbers of Magpies, Ravens, and Kites, it contracts its wings at once, and like a bomb drops from the air on its prey. After the arrival of the first one, others follow in quick

succession on observing the action of the former ; and almost in no time tens of these large birds come together and commence to feed upon the carrion with great noise and much fighting. Having eaten as much as they possibly can, they fly away, or oftener sit close to the prey and observe their companions feeding upon the same. Brehm describes a similar scene with regard to the African Vultures ; but we several times had occasion during our travels to witness it ourselves. The greediness of this species is so enormous that, when feeding, they do not take any notice of the sportsman, and even when shot at they return in a very short time.

It is remarkable that the Griffon, when dashing down from such a great height, and with tremendous speed, can during this time discern what is taking place below. I had the opportunity of witnessing an instance of this. Once our camel, when feeding, lay down on the ground on its side, and was reclining for some time in the same position, when high up in the clouds we all at once observed a black spot moving with great rapidity towards the ground. We soon knew it to be a Griffon. To our great surprise the bird expanded its wings when it was within about three hundred yards from the ground, and flew away. Then looking at the camel we found that it had risen ; so that the Vulture, which had mistaken the camel for a carcass, had noticed its mistake even at the great speed with which it was descending.

For nesting, this species, like the next, chooses large inaccessible rocks ; and here, in a cavity, these birds build their nests of thick sticks and dry branches of large size ; such a nest serves them for a good many years. In the Suma-had mountains we observed a large-sized young bird at the end of May.

The name given to it by the Mongols is "Tasso ;" and it is looked upon as a sacred bird. Some people, however, kill the present as well as the preceding species for the sake of their tails, which are used for making arrows ; and in the town of Dolon-nor we saw such tails in the shops, put out for sale by the Chinese.

A male *Vultur monachus* brought by us from Southern Mongolia does not differ in colour from specimens shot in the Caucasus and the Altai. The feathers of our specimen covering the upper portion of the tarsus reach down on the outer side almost to the base of the middle toe, getting narrower by degrees.

Measurements :—

	Length.	Width.	Wing.	Tail.	Culmen.	Tarsus.
	in.	in.	in.	in.	in.	in.
♂, from Mongolia . .	43	105	33·5	14·5	3·4	5·3
♂, from Tibet . . .	44	102	32	17	?	?

3. GYPS HIMALAYENSIS, Hume. *Griff himalayskey*.

Gyps nivicola, Sev. Vert. i Gor. Raspr. Turk. Jev. pl. vii.

The third species of Vulture met with by us during our expedition was *Gyps himalayensis*, closely allied to *Gyps fulvus*, from which, however, it differs by its larger size and the pure white lower wing-coverts, and, according to Mr. Severtzoff, by the constant form of the feathered neck-band, which is permanent at all ages. This bird, inhabiting the Himalayas and the Thian-shan, was first observed by us in the Kan-su mountains, which form the northern limit of the geographical distribution of the species. Further along our route we met with it at Koko-nor and Northern Tibet, but most frequently in the Kan-su, where it keeps to the highest elevations.

Only the temptation of a feast upon carrion makes it come down to lower altitudes. The nest is built on the most unapproachable rocks and cliffs of the Alpine region ; sometimes, but rarely, it nests on the middle regions of the mountains ; and it selects similar places for its roost during the night. In the first volume of my work (pp. 349–351) I gave a short description of its habits, which, however, are very like those of its congeners.

We never met with these Vultures in the Ala-shan desert, adjoining the northern slope of the Kan-su mountains, but found them very numerous at Koko-nor ; and after an animal was killed, an hour would not elapse without tens of these Vultures being seen near the carcass. Rags or other similar

articles put on the dead body do not frighten these greedy birds, who are usually assisted in devouring the carrion by wolves, which very quickly join the Vultures. Strange to say, a cap hung up close to the body on a pole frightens them away; and this is the only way of securing the sportsman's booty.

Looking upon the large number of these birds and the Bearded Vultures which inhabit the Kan-su, it often puzzled me where they can find sufficient food for their subsistence, especially in summer, when the weather is rainy, and in consequence thereof it is impossible to see at great distances; besides, the Mongols and Tanguts frequently feed on the carrion themselves, especially if it is fat. There are, however, so many wild and tame beasts in the steppes of Koko-nor &c. that these might afford them enough food, although it is very probable that they sometimes fast for a long time. A considerable amount of food is also afforded by the dead bodies of the Mongols and the Tanguts.

In Northern Tibet the Himalayan Griffon Vultures are much scarcer than the *Vultur monachus*, which, again, is rarer in Kan-su.

An old male obtained by us weighed from 25 to 30 pounds, and measures as follows—length 45", width 103", wing 31"·5, tail 15", culmen 3", tarsus 4"·4. We did not succeed in obtaining a female specimen; but we saw many birds on wing which seemed to be considerably larger than our specimen. Of the enormous size of this bird Mr. Severtzoff has already spoken, stating that a specimen from Vernoe has been given to the Moscow Museum, measuring in length 4' 7", and 10½" in width.

The Mongols speak of this species as "Zaigan Tasso," *i. e.* White Tasso; and the Tanguts call it "Gutincar:" with both of them it is sacred.

4. ARCHIBUTEO HEMILASIUS, Temm. & Schleg.

Archibuteo hemilasius, Temm. & Schleg. Faun. Japon. pl. vii.

The occurrence of this species in Mongolia is strictly dependent on the distribution of *Lagomys agotono*, which latter forms its principal food. In the

steppes of Zachar, where *L. agotono* is extremely abundant, *Archibuteo hemilasius* is found very commonly in the winter, and remains even for the summer in great numbers, building their nests on crookedly grown trees, which are now and then to be found on the plains and on the mountains. West of the Zachar country, where the ground changes, they diminish in number; and about Ordos and Ala-shan they are very rarely to be met with.

We only once observed the species in Kan-su, which in great numbers winters in the steppes of Koko-nor, where another kind of *Lagomys* is very abundant. They seize their prey by dashing downwards or watching it at the hole on the ground. These birds, when occupied with their food, as also at other times, are very tame on the approach of man. They are rare in Tsaidam, and have not been found by us at all in Northern Tibet.

Besides *A. hemilasius*, we observed in Mongolia, about Koko-nor, another species of this genus, which was much larger than the present and of a uniform dark brown colour; but I am sorry to say we could not succeed in obtaining a specimen.

5. AQUILA CHRYSÆTOS, L. *Orel Holsan.*

One specimen, a middle-aged male, was obtained in autumn at Ala-shan. In S.E. Mongolia we several times observed adult Eagles (with white shoulders) belonging to the present or perhaps to the following species, but did not succeed in killing any. In Kan-su and Koko-nor this bird is scarce, and old birds were not observed there by us at all; but young of the present and the two succeeding species are very difficult or, rather, impossible to distinguish at a distance.

Our Ala-shan specimen does not differ at all from European birds of the same age. This has also been noticed by Dybowsky with regard to the Daurian and Lake-Baikal specimens.

Père David says that he has seen a different Eagle in Mongolia—*i. e.* of a larger size, with a longer culmen and a white tarsus.

6. *AQUILA IMPERIALIS*, Bechst. *Orel Mogilnic.*

We shot a single specimen at Koko-nor, which appears to be a young bird and exactly corresponds with the one figured in Gray's Ill. Ind. Zool. ii. pl. xxviii., only that the lines of the wings are of a deeper yellow colour than in the above-mentioned plate.

This species was observed in Mongolia by Père David; and at Koko-nor we found it wintering. We did not see there any old birds with white shoulders. The present species is altogether scarcer in S.E. Mongolia and Koko-nor than the succeeding allied one.

7. *AQUILA BIFASCIATA*, Gray.

Has been found all over the country traversed by us, but is commonest in S.E. Mongolia and Koko-nor. In the former locality the Eagles find suitable breeding-places in the mountains forming the boundary between Mongolia and China; whilst the neighbouring steppes, inhabited by the *Lagomys* in great numbers, afford sufficient food for them. On the Koko-nor, where these mammals are also abundant and where there is but little snow in the cold season, many birds of prey are induced to winter; and not being pursued by man, they get tame very soon.

The cleverness with which *Aquila bifasciata* catches the Alpine hare is something extraordinary. The poor beast, which sits close to its hole, has not time to jump in before it is seen in the claws of the rising Eagle which has just swooped down upon it. These Eagles also prey upon Ptarmigan (*Perdix barbata*); and on one occasion we took from a young male specimen in Kan-su an Eagle Owl (*Bubo maximus*), which it was carrying in its talons. Evidently hunger had compelled the Eagle to attack such dangerous and uninviting game.

Pairing commences in March; and at this time we could often see the male bird chasing the female high up in the air, uttering at intervals a tolerably loud cry, somewhat resembling the barking of a dog. The nest is

built of dry branches, on some protruding rock, which usually is quite inaccessible. Only once, in the middle of May, in the mountain-chain of Sharahad, could I reach a nest, which contained two young birds covered with snow-white down; and close to them was lying a half-devoured Ptarmigan.

Measurements:—

	Length.	Width.	Wing.	Tail.	Culmen.	Gape.	Tarsus.
	in.	in.	in.	in.	in.	in.	in.
♂ . .	29	72	22·5	11	2·05	2·6	3·83
♀ . .	32	?	24	11·5	2·16	2·82	3·88

8. *AQUILA CLANGA*, Pall. *Orel Caragush*.

Only one male specimen was obtained by us in the spring of 1871, at the Dalai-nor. Since then we have met with this Eagle two or three times in S.E. Mongolia, but did not observe it either in Kan-su or Koko-nor. By small size and short tarsus our species approaches very nearly *A. nævia*, Briss., and perhaps forms the intermediate link between these two species.

Measurement of our male specimen:—Length 24", width 55", wing 19"·5, tail 9"·7, culmen 1"·82, gape 2"·2, tarsus 3"·9.

9. *CIRCAËTUS GALLICUS*, Gmel. *Cratchun golubonogey*.

Has only once been met with in the valley of the northern bend of the Yellow River. Here, at the entrance of a mountain-gorge in the Hara-narin mountain-chain, I found a nest, on the 5th of May, situated on a high elm tree, and built very carelessly and loosely of small dry sticks. It was very flat and of an oval shape, and lined inside with green but, at the time, somewhat dry twigs and leaves of the elm. Only one deeply incubated egg was lying in the nest. Just before dusk, when it was found, the male bird was sitting; which afterwards was slightly wounded with shot by me. Notwithstanding this, however, the same bird was sitting next day on the eggs, and so closely that we could only after some trouble get it off the nest.

The female was much more cautious, and did not return for a long time, after the male was killed.

10. PANDION HALIAËTUS, L. *Scopa retchnaya*.

In the waterless deserts of Mongolia this species of course cannot exist, not being able to procure its food. We met with it for the first time at the end of April 1872, in the valley of the northern bend of the Hoang-ho, which then was flooded and abounded with fish. In all probability these birds were only migrating, as we never saw any Ospreys in summer about this valley; and I doubt if they can exist here, the water of the Hoang-ho being very muddy and consequently not adapted for catching fish. During the spring migration we met with this species again in Kan-su, and killed a female specimen on the river Buguk-gol; and about the beginning of May one of my party observed several flying singly northwards along the valleys of the river Ranghta-gol. In Koko-nor we never saw it.

Mr. Swinhoe says (P. Z. S. 1863, p. 260) that the Chinese Osprey is somewhat smaller than the European form; and this statement is confirmed also by our specimen from Kan-su.

Measurements—length 22", width 61", wing 19"·5, tail 9", tarsus 2"·5.

In the Ussuri country it is to be met with, if not very frequently, still certainly not rarely, but only during migration, which takes place at the end of September. On Lake Hanka, notwithstanding the large amount of fish, the Osprey is very scarce, probably on account of the dull and muddy water, from which cause it is also rare at the Yellow River.

11. HALIAËTUS ALBICILLA, L. *Orlan belohvost*.

This bird frequents the shores of the sea or the lower inland lakes, and has been found by us in S.E. Mongolia, on Dalai-nor and near the town of Dolon-nor. In Ordos, Ala-shan, and Kan-su we did not observe it; but in Koko-nor we saw a pair about the middle of March. In Ussuri country, and

especially in the neighbourhood of Lake Hanka, the White-tailed Sea-Eagle is extremely common. It also inhabits the shores of the Japanese sea as a resident; whilst in Ussuri and about Lake Hanka it leaves for the winter and returns only in February.

This Eagle can usually be seen sitting on some high dry tree near the shore of a river or lake; and, not being pursued by men, it is very tame, although, as a rule, difficult to approach within a hundred yards on land; but from a boat the closest possible shot at it may be obtained. In spring, individuals are so daring about Lake Hanka that more than once I had my birds carried away by them when they fell shot dead or wounded on the ground. It often preys upon the migrating Geese and Ducks, especially upon those which are wearied by the journey. Later on, when Lake Hanka is clear of ice, the species chiefly eats fish which get washed on shore during a storm. Once I found in the nest of a White-tailed Eagle about ten tolerably good-sized fish, which were so far decomposed that the smell could hardly be endured. The owner does not mind this. Also it steals now and then. For instance, when going up the Ussuri, in December 1867, I observed some Eagles in a large forest, which were sitting near a hiding-place for fish caught by the native Ortochi; and these birds, in company with Ravens, were eating and scattering the contents all over the place. I may remark here that the hiding-place was situated in a forest, and the fish were covered with dry branches. The Ravens most likely discovered it, and were accompanied afterwards by the Eagles.

In the neighbourhood of Lake Hanka they build their nests in forests or small groves standing amidst large marshes, and also on isolated big trees near rivers. The nest is constructed of dry sticks on great oak, elm, or lime trees, sometimes in the forks of branches, but usually on the top of such trees as are broken during a storm; some of these nests assume enormous dimensions. I obtained eggs in the middle of April, a portion of which were quite fresh, whilst others were very much incubated. The earliest young were taken on the 9th of May, about the size of a Teal; and they usually leave the nest about July. If not disturbed, this species does not always build on

such inaccessible places and trees ; and I once found, on the shore of Lake Hanka, in a spot seldom visited, a nest on a willow not more than fourteen feet from the ground. The access to this nest was very easy ; but being only small, in all probability it belonged to young birds.

On comparing the Mongolia and Ussuri specimens with birds obtained in Europe, I find that the Eastern Asiatic form is smaller ; but European specimens also differ very much in their dimensions.

Measurements :—

	Length.	Width.	Wing.	Tail.	Culmen.	Gape.	Tarsus.
	in.	in.	in.	in.	in.	in.	in.
♂. Ussuri . .	?	?	24·5	11	2·52	2·9	3·9
♂. Mongolia .	32	69	23	10·5	2·22	2·73	3·7

12. HALIAËTUS MACEI, Cuv.

Haliaëtus macei, Temm. Pl. Col. tab. viii.

The first time we met with this species was on the northern bend of the Hoang-ho ; there we found it tolerably common. Like the preceding one, also, the present principally feeds upon fish, although it occasionally, when pressed for food, attacks birds. Once I saw this Eagle chasing a Widgeon, pursuing it very quickly ; and I believe that even carrion does not come amiss to it. In habits it much resembles its relation the White-tailed Sea-Eagle. In flight it is strong and light ; but I never saw it soaring about high up in the air, but we often noticed it flying very low above a lake or river, almost touching the water with its wings. When tired, or after feeding, it rests on the rocky shores. It is by no means shy, and will allow a very near approach ; and when disturbed it usually describes a circle in the air above the sportsman, and this is a chance for a good shot.

This species breeds, perhaps, on the isolated trees of the Hoang-ho valley or on the heaps of stones built up by the Mongols (termed “obo”) and kept by them as sacred ; for in both the above-mentioned places we have

found nests. But this happening about the end of July, they were empty. Judging, however, by their size and structure, they evidently belonged to Eagles.

Excepting the Hoang-ho valley, we at times met with this species in Kan-su, and during spring and autumn observed it also about Koko-nor.

This bird departs for the winter, and returns again in March. I believe I observed it in the vicinity of Urgey in September 1873.

13. *FALCO HENDERSONI*, Hume. *Socol Hendersona*.

Falco hendersoni, Henderson & Hume, Lahore to Yarkand, pl. i.

The various stages of plumage, according to age and local varieties, make it very difficult to distinguish the different species of Falcons—so much so, that even the best ornithologists differ in this respect in their opinions. To one of such disputed species belongs *Falco sacer*, which forms several varieties in Eastern Europe and throughout Asia. In the region of our travels we did not observe (or, at least, did not obtain) the true *Falco sacer*, Schl., which is so beautifully figured by Schlegel in his 'Traité de Fauconnerie,' pl. v., and by Gould in his 'Birds of Asia,' part xx. Everywhere we found only the species described by Hume, in 'Lahore to Yarkand,' under the name of *Falco hendersoni*.

We obtained only four specimens (two males and two females), of which three (two males and one female) completely correspond with Hume's description, with only insignificant differences. The second female, which is rather younger than the three former specimens (this is to be distinguished by the blue, and not yellow legs), differs from them by the absence of a fully striped tail, as only incomplete reddish-yellow bands are perceptible on the inner webs of the tail-feathers, whilst the outer webs are marked with spots of the same colour as the bands. Again, the yellow streaks of the female *F. hendersoni* are replaced in the present specimen by spots of the same colour. The breast is pied, on account of the large dark brown spots, just like the

true *F. sacer*; whilst on *F. hendersoni*, as also on our three specimens, the breast is milk-white, marked with narrow and triangular small spots. The bill is black at the point and bluish at the base, and has only on the lower mandible a yellow mark, which colour is predominant on both mandibles in our three specimens. Consequently the young-plumaged *F. hendersoni* is nearer to *F. sacer*, which, however, is sufficiently developed to be separated as a species.

Measurements :—

	Length.	Width.	Wing.	Tail.	Gape.	Tarsus.	Middle toe.
	in.	in.	in.	in.	in.	in.	in.
♂ . .	18·5	33	14·8	7·8	1·23	1·9	1·78
♀ . .	22·5	37	16·6	9·3	1·27	2·16	2

Henderson's Falcon was found by us wherever we went, from Kiachta down to the sources of the Yantze-kiang; but it was most numerous in winter in the Zachar country and about Koko-nor, which localities abound with Alpine hares; and these, at least in winter, form its principal food.

This Falcon also attacks birds, such as *Syrrhaptes paradoxus*, usually when the latter are drinking. Once it threw itself upon a hare which we had started, and followed it, constantly swooping down upon the animal and hitting it with the beak; after every blow the hare stopped and went on running after a time, until we lost sight of it and consequently could not tell how the attack terminated.

The Mongols and Tanguts do not train these Falcons for sport; at least we never saw it during our travels.

14. HYPOTRIORCHIS SUBBUTEO, L. *Socol Cheglock.*

We met with it occasionally in Mongolia, about Muni-ul and Hara-narin-ul, also at Northern Halha and Urgey; but in neither of these localities is it common. It has also occurred at Lake Hanka and the river Sufun.

15. *HYPOTRIORCHIS ÆSALON*, L. *Socol derbnick*.

Is much more abundant than the preceding species, and was observed by us in the Zachar country during the winter, in Ordos and Kan-su during the summer, and at Tsaidam in the month of February. In Ussuri district and about the Amur we did not meet with this species; nor has it been seen by any naturalist who has visited that river.

16. *TINNUNCULUS JAPONICUS*, Schleg. *Pustelga japonskaya*.

Tinnunculus japonicus, Temm. & Schleg. Faun. Jap. pl. i.

We found this the most common bird of prey in all the countries visited by us—*i. e.* in the plains of Mongolia (except the most desolate parts of the desert), Kan-su, and Northern Tibet. In all these places this Kestrel is a resident, and breeds on rocks and trees. In the woodless plains of Mongolia it usually keeps to the hilly or mountainous parts; whilst in localities where there are a few trees it can commonly be seen perching on the tops of the latter. In the western portion of the Urot country, between Ala-shan and Halha, where elm trees are numerous, it is very common. It is tolerably numerous in Ussuri country, and keeps in the interior of the country as well as on the sea-shore. About Hanka it is rather scarce and leaves for the winter about the end of September, returning again in March.

17. *ERYTHROPUS AMURENSIS*, Radde. *Copchick amurskey*.

Erythropus amurensis, Radde, Reisen im Süden von Ost-Sib. tab. i. f. 2.

Erythropus amurensis, so commonly distributed throughout China, is to be met with sporadically in Mongolia, and even then only close to the habitations of men. We found it breeding only in the vicinity of the Missionary Station of El-shi-san-fu and the town of Din-jan-in, but never saw it in the Hoang-ho valley, although the locality seems to be a very suitable one for it. We noticed a pair in Kan-su breeding in some poplars which grew

in a Chinese village. About Lake Hanka it is the commonest bird of prey, and breeds principally in the groves amidst the Sungachin marshes. It arrives here in spring, about the end of March; but the date of its departure we could not ascertain.

18. MILVUS MELANOTIS, Temm. & Schleg. *Corshun chernouchev*.

Milvus melanotis, Temm. & Schleg. Faun. Jap. pl. v.

Winters in great numbers about Pekin; but in the higher-situated Kolgan it is only a summer visitant. According to my companions' observations, the first Kites appeared at Kolgan on the 16th of February in the spring of 1872. Throughout Mongolia, Kan-su, and about Koko-nor it is common, and in some localities even extremely numerous. We found it in the wild deserts of Ala-shan, as well as in the alpine regions of the Kan-su mountains, where it ascends to an altitude of 12,000 feet above the level of the sea. It is even more daring than the European species; and in company with Ravens this most fearless bird appears everywhere where a tent is erected, and steals the first thing eatable that presents itself. Its audacity goes even so far as almost to take the flesh out of men's hands. On one occasion, in swooping down on a piece of meat, it touched with its wings the man's head who was sitting close by it; and when an antelope or some other animal was killed, the flesh of which was usually hung up for drying in the sun, we could only save it from the Kites by watching with a gun. Once, on a similar occasion, I killed nine specimens in succession; but the remaining birds still kept flying above the meat, trying to steal a piece lying a little out of the way. In the case of an animal left (after being killed) on the steppes, the Kites and Ravens were the first birds to assemble; and they usually thus indicated to the others where the carcass was lying.

In S.E. Mongolia the Kites arrive about the middle of March; in April they commence repairing or building their nests, which are always situated in trees, and not on rocks. In Ala-shan they breed even on the low saccaulnic bushes.

At Koko-nor we saw the first Kites on the 9th of March; but here they were not so numerous as in Kan-su. The probable reason for this is the scarcity of trees on the Koko-nor steppes. The autumnal migration from Ala-shan and Kan-su takes place in September.

In Ussuri country *Milvus govinda* is a very common bird, and many specimens can be seen during a single day. About Lake Hanka the first birds arrive between the 8th and 15th of March, and commence building in April, constructing their nests not far from the ground, on large trees, and close to the water, always avoiding great forests. As early as the middle of April have I obtained eggs—two, or even three, in one nest. These are marked, on a dirty white ground, with reddish brown spots and lines, which are thickest at the ends. Largest diameter 2".21, smallest diameter 1".76.

19. *ASTUR PALUMBARIUS*, L. *Jastreb tetereviatnick.*

A young specimen has been obtained in autumn at Ala-shan. In S.E. Mongolia it has been observed once or twice, but did not come under our observation either at Koko-nor or in Kan-su.

In Ussuri country this species is to be met with on the coast as well as in the interior during summer.

20. *ACCIPITER NISUS*, L. *Jastreb perepeliatnick.*

Is plentiful in S.E. Mongolia and Kan-su, but has not been met with by us in any other locality. In Ussuri country it is commoner than the preceding species, and certainly leaves the interior of the country for the winter, but is a resident on the coasts. At Hanka it appears in spring about the end of March.

The Coreans and Oroches train this, as well as the preceding species, for sporting-purposes.

21. *CIRCUS SPILONOTUS*, Kaup.

Has been found by us in great numbers on Lake Dalai-nor and in the Hoang-ho valley, in marshes overgrown with reeds, where it also nests. In other parts of Mongolia, where there are no marshes, the Harrier is very rarely to be seen. In Kan-su it does not breed; but in the end of September we noticed here several migrating specimens. Again, we met with it as wintering in the marshes of Tsaidam, as well as on the northern bend of the Yellow River and in S.E. Mongolia; in the two latter localities it keeps in the larger patches of grass, especially in *Lasiagrostis splendens*.

Circus spilonotus most probably does not winter at Koko-nor, but arrives there in spring, about the end of March. It is remarkable that we have never seen, either in Mongolia or Ussuri country, the common or even the Marsh-Harrier; neither has it been observed on the Amur, but is occasionally met with on the other side of Lake Baikal; and according to Swinhoe it has also occurred on the coast of China proper. Although female and immature specimens of the two latter species are very hard to discriminate on the wing from the present one, still I think that if the common Harrier occurred there I should have obtained at least one specimen during my stay of three years in Mongolia and two years in Ussuri country.

22. *STRIGICEPS CYANEUS*, L. *Lun polevoy*.

Has been found wintering in Tsaidam and the Zahar country. At Dalai-nor it was met with in rather small numbers during the spring, and has not been observed in the Hoang-ho valley.

On a small marsh at Ala-shan we found, in the beginning of June, a nest constructed in some very thick reeds, as is usually the case with this bird. The nest contained two partly incubated eggs, of a somewhat dirty white colour: largest diameter 1".73, smallest diameter 1".38.

Once only we observed it in Kan-su, during the autumnal migration, in

September, and never in Gobi. It is rather scarce in Ussuri country, and arrives at Lake Hanka about the end of March.

23. *ATHENE PLUMIPES*, Swinh. *Sirin mochnonogey*.

We found *Athene plumipes* throughout Mongolia, but only rarely at Koko-nor and in Northern Tibet. In Mongolia it frequents the lofty and hilly steppes, which abound with small rodents; whilst in Ala-shan we often met with it in the sagsaulnics on the high but woodless mountains. In the open steppes it keeps to the clayey shores of brooks or rivers, and inhabits also the deserted habitations of man, which are rather numerous in Ordos and Ala-shan. We could often hear, both by day and night, this Owl's solitary cry, which used to frighten the superstitious Mongols, who believe that these sounds are uttered by the murdered people who formerly dwelt there. Sometimes the Owl would sit during the night on the top of our tent, which usually was spread in a plain, and would keep on calling so long that we had to frighten it away.

Like its European relation it can see very well during the day, and is sensible enough to avoid danger, but is easily killed at that time.

24. *BUBO MAXIMUS*, Sibb. *Filin pugatch*.

Though we were not successful in obtaining even a single Eagle-Owl for our collection, still we repeatedly observed it in the mountains of Kan-su, and once we took a young specimen from an *Aquila bifasciata* by whom it was killed. I believe I observed it also at Ordos; but not possessing a specimen, we cannot state whether the Mongolian and Kan-su Eagle-Owls belong to the lighter-coloured and larger variety (*Bubo sibiricus*, Licht.) inhabiting Eastern Siberia and the Amur, or to our European one. In Ussuri country the Eagle-Owl (*Bubo sibiricus*) is found in all forests, but is not very common. About the middle of March I killed a male specimen on the Sungatch. It

was sitting on the river-side, in high grass, and, this happening in the day-time, it let me approach within about one foot. Measurements—length 27", wing 19", tail 11".5.

We were not fortunate in collecting Owls, having obtained only one species (*Athene plumipes*), although we observed in Ordos, S.E. Mongolia, and Ala-shan at least two more species; but what they were I cannot state with certainty. The following adventure with a nocturnal bird, probably an Owl, is very strange:—

In Ussuri country I often heard, between the months of May and July, late in the evenings or at night, the tolerably loud noise of a bird unknown to me. Its cry is something like "ot-ot, ot-ot;" it kept mostly to the rocks and wooded or fissured plains, and commenced calling so late that I was unable to catch a glimpse of it.

On the first evening of our arrival at the wooded mountains of Muni-ul, in June 1871, I heard this cry again; and during our stay of eleven days we could hear the voice of this unknown bird every night, but could never see it, owing to the late twilight (at which time it commences its call) and the very difficult walking at such a time over the rocky localities. The Mongols know it very well, and call it "socto-shubu" (*i. e.* drunken bird), on account of its irregular flight when frightened up in the daytime.

In the month of April 1872 we revisited Muni-ul, and heard this note again throughout the night and several times in the day, but only during very short intervals. On this occasion we did our best to find it out, by hiding ourselves in the clefts from where the cries seemed to come; but all was useless. Only once the Owl flew above my head, but even then at such a speed that I could not fire. According to the flight and wings, it is a medium-sized Owl. It does not call only from rocks, but also from trees.

Besides Muni-ul we heard the voice also at Hara-narin-ul, but have not met with it either in Ala-shan or about Kan-su.

And thus, in the course of my five years' long journey, I could not get

one single specimen of this strange bird, although I have wasted a great deal of time and labour over it; but such is the disappointment to which all researches of naturalists are liable.

Order II. PASSERES.

25. CAPRIMULGUS JOTACA, Temm. & Schleg. *Cozodoy japonskey*.

Caprimulgus jotaca, Temm. & Schleg. Faun. Jap. pls. xii. & xiii.

This species differs from the European Nightjar only by a few trifling outward characteristics, but principally by its voice. We met with it in S.E. Mongolia, in the Suma-had mountains, and in Muni-ul. In the richly wooded but waterless country of Ala-shan it does not appear to occur. In Kan-su we only on one occasion heard its voice, in the early morning, just before sunrise, in May; and I think we noticed the same note in August at this place.

In its habits it does not differ at all from its congeners, hiding itself during the day in the bushes and among stones, and commencing its activity immediately after sunset; in spring, when the nights are fine, it is busy throughout the whole night. The voice, consisting of quickly repeated syllables like *tuck-tuck-tuck*, reminds one of the knocking of a hammer on an anvil; and for that reason it is called "the blacksmith" by the Mongols. It repeats its call-note thirty or even forty times without stopping; and then it remains again quite silent for a short interval. In some cases it has been heard uttering its note over a hundred times running, stopping only long enough to breathe. It calls only when sitting, usually on some dry branch. When flying, it now and then gives out a sort of hoarse quiet sound, which seems to express some soft feeling towards the female; and I have heard it make the same noise on the approach of a man, dog, or any thing unexpected. When taking to flight it often stops, fluttering with its wings. It is very easy to imitate this sound, and thus to bring the bird close.

In Ussuri country it is common, and arrives there about the middle of May; and from that time its notes are to be heard every morning and evening

till the 20th of July. In this month, however, they make less noise, and do so only late in the evenings and early in the mornings.

26. CAPRIMULGUS PLUMIPES, n. sp.

Fulvo-isabellinus nigro striatus et vermiculatus; alarum primariis fasciis latis transversis rufis notatis, tectricibus alarum lunulis numerosis isabellinis signatis, subalaribus pallide rufis; crisso subcaudalibusque isabellinis immaculatis; tarsis totis vestitis.

We met with this species only once, and then in the tamarisk-bushes at the northern bend of the Yellow River, obtaining a single specimen (young female?), which, by its general colour, approaches *Caprimulgus arenicolor*, Sev.*, from Turkestan, and *C. isabellinus*, Temm., but differs from both these species by having long black streaks all over the head and the upper parts of the body similar to those of *C. europæus*; these streaks, however, are narrower and not so numerous. Again, our species has thirteen cross bars on its tail, whilst *C. arenicolor*, Sev., has only eleven. The primaries are marked on the outer as well as on the inner webs with large reddish brown spots; the upper wing-coverts are spotted at the ends with pale yellow; the back portion of the stomach and the under tail-feathers are pale yellow, without any markings; the tarsus is feathered down to the toes. Measurements of our specimen—length 10''·5, width 21''·8, wing 7''·5, tail 5''·2, gape 1'', tarsus 0''·5, middle toe (without the serrated edge) 0''·66. Quills, longest 2>1>3. Culmen black; legs dark brown; iris brown. We did not see this bird anywhere, except in the Hoang-ho valley.

27. CYPSELUS APUS, L. *Strish bashenney*.

Cypselus apus is tolerably common throughout Mongolia, and breeds there on the clay walls of the houses or in earth banks. In Kan-su it is very scarce, and we observed a few specimens (which most probably were breeding) in the alpine circle of the mountains.

* [*Cf.* Ibis, Oct. 1875, 3rd ser. vol. v. p. 491, "falso *C. isabellinus*, Sev., nec Temm."—
EDITOR OF O. M.]

On comparing the Mongolian *C. apus* with European specimens, we could not detect any difference, except the somewhat paler coloration of the former, for which reason Mr. Swinhoe (P. Z. S. 1871, p. 345) made the new species *C. pekinensis*; but the Daurian and Baikal birds do not differ at all from the European ones, not even in the shading of the plumage.

They arrive in S.E. Mongolia about the middle of May, and leave about the end of August; and during our voyage from Ala-shan to Urgey, through Gobi, we met with the migrating *C. apus* throughout the month of August. Then, again, on the 1st of September, at a distance of about 150 versts south of Urgey, we saw at twilight a great flock of *C. apus* migrating in a south-westerly direction.

28. CYPSELUS PACIFICUS, Lath.

Cypselus pacificus, Gould, Birds of Australia, ii. pl. xi.

Was found by us throughout S.E. Mongolia, Ala-shan, and Kan-su. Contrary to the preceding species, the present one inhabits only the highest mountains, and there the most rocky, wild, and inaccessible localities. Only in the lofty Kan-su does it breed in the central and lower zones, but is numerous there also in the alpine regions at an absolute height of 12,000 feet, or even higher.

By its habits, character, and voice (the latter only being somewhat weaker) *Cypselus pacificus* does not differ from *C. apus*.

During whole days these birds are flying round, shooting through the air and about the rocks and cliffs; but in the mornings and evenings they go into the steppes, where they usually fly close to the ground, occupied in catching insects.

C. pacificus arrived in S.E. Mongolia very early in 1872. In the Muni-ul mountains we observed the first specimens on the 12th of April, which at once took possession of their old quarters. They reappear in Kan-su about the middle of May, and take their departure towards the end of August.

We did not observe when they leave Mongolia in their autumnal migration, and can only state that in Halha the last specimens we saw were flying southwards at the commencement of August. It does not occur in Ussuri country, but breeds numerously on the rocky shores of the Amur river.

29. CHÆTURA CAUDACUTA, Lath.

Chætura caudacuta, Gould, Birds of Australia, ii. pl. x.

We met with a few specimens on their autumnal migration in S.E. Mongolia at the northern bend of the Hoang-ho. It does not occur in Kan-su; but the English naturalists state that it breeds in the highest rocks of the Himalayas, near the perpetual-snow region. It goes as far north as Jakutsk; and a specimen obtained there is now in the Irkutsk Museum. It is tolerably common in Ussuri country, and breeds in the cliffs on the shores of rivers and in the hollow trees. It seemed to me to be commonest on the forest-hills about Lake Hanka. Usually several pairs breed close to each other; and during the season of propagation (*i. e.* in May) the males, like our Swifts, chase the females on wing, describing all sorts of circles in the air, uttering a weak note which is more like that of our Swallow than our Swift.

In Ussuri country *Chætura caudacuta* arrives at the end of April, and in Mongolia a week or two later. The migrating ones do not form compact flocks, but fly at small distances from each other and very close to the ground. We saw them leave Mongolia in the autumn in this way. Their departure from the southern parts of Ussuri occurred in the end of August, some of them remaining, however, as late as the beginning of September. The principal migration took place on the 9th of September, when we saw an almost uninterrupted flock of them passing above our heads for almost a whole day. They were migrating in company with *C. pacificus*.

30. HIRUNDO GUTTURALIS, Scop.

This eastern representative of our Swallow is met with throughout

Mongolia, and breeds there on the huts and even inside the tents, especially in the latter. It very patiently hatches its eggs in the nest, which is fastened to the ceiling. The Swallow, however, is always patronized by the Mongols; also the Chinese never destroy a Swallow's nest; consequently they get so tame that they breed inside the Chinese houses. In S.E. Mongolia the first birds appear about the 23rd of April; but no large migrating flocks were noticed by us. We did not find them in Kan-su; and everywhere in Ussuri country, near human habitations, we met with *Hirundo rustica*, var. *rufa*, Gmel. It arrives about Lake Hanka in the end of April, and leaves there in the early part of September; some few individuals, however, stop much later, and I once observed two as late as the 2nd of October in Hun-Chun.

31. CECROPIS DAURICA, L. *Lastochka daurskaya*.

Cecropis daurica, Gould, Birds of Asia, part xx. pl.

The specimens obtained by us in S.E. Mongolia and Kan-su have hardly any black streaks on the rust-coloured rump; and these are scarcely perceivable. At the same time, the black streaks are much narrower on the underparts than is shown in Gould's plate, although they are somewhat wider than in *C. erythropygia*, Sykes, which also differs from the present species by the absence of all streaks on the rump and the wider rust-coloured patch on the nape.

The Daurian Swallow is extremely common in S.E. Mongolia, Ordos, and Ala-shan. In Kan-su it inhabits the median and low mountain-circles, and hardly ever visits the Alpine zone. It breeds on rocks, as well as in summerhouses, and even in tents.

The shape of the nest is elongated-oval, about 8 or 10 inches long; the front portion is occupied by a narrow entrance. The eggs are pure white, five or six in number, and are deposited in the wider part of the nest, which is lined with hair, wool, and feathers. The young leave the nest about the middle of summer; but in a single instance we found, on the 20th of September, in

Din-juan-in, close to the Ala-shan mountains, a nest with some unfledged young in it.

It arrives in S.E. Mongolia much later than *Hirundo gutturalis* (*i. e.* about the 10th of May), although in the mountains of Kalgan we once observed it on the 23rd of April. The first birds in Kan-su were seen on the 14th of May. The autumnal migration takes place in the early part of September; and on the 12th of this month we saw a large flock about the river Tetunga, which occupied about two hours in passing us. In Ussuri country we only once observed it.

32. COTYLE RIPARIA, L. *Lastochka semliannaya*.

Is tolerably common in S.E. Mongolia, but is rather scarce about Ordos and Ala-shan, and does not occur at all in Kan-su. It breeds in the former localities in small companies of from three to five pairs, on the sides of rivulets, and sometimes in the hills of the steppe at great distances from the water. On the 6th of June I took a nest with six perfectly fresh eggs; and on the 18th of the same month we found some young birds.

They arrive in spring in S.E. Mongolia at the end of April, and leave at the end of August; on the 20th of this month we observed, in the Hoang-ho valley, an enormous flock migrating south.

In Ussuri country and the basin of the Hanka we never met with *Cotyle riparia*; nevertheless it breeds in the Amur district.

33. COTYLE RUPESTRIS, Scop. *Lastochka gornaya*.

Is common in the mountains of S.E. Mongolia and Kan-su. In the latter place they do not ascend as high as the alpine region. They spend whole days in flying about the rocks where they breed. Their nests are usually stuck to protruding stones, or roofs of small caverns in the rocks.

The first migrants arrived at Muni-ul on the 9th of April, and in Kan-su on the 26th of the same month.

Extremely interesting is Père David's observation (mentioned by Swinhoe*) that in the mountains about Pekin these Swallows sleep during the winter in caverns, which they only leave on fine days in winter for a few hours.

Measurements :—

	Length.	Width.	Wing.	Tail.	Tarsus.
	in.	in.	in.	in.	in.
♂ . .	4·8	11	5·45	2·44	0·4
♀ . .	?	?	5·24	2·35	0·4

34. CHELIDON CASHMERENSIS, Gould.

Was found by us in great numbers in the Ala-shan mountains and in Kan-su. In S.E. Mongolia they are rather scarce; they might possibly breed in Hara-narin-ul, but certainly do not occur in Muni-ul at any other time than during migration. It avoids the habitations of man, and keeps to the wild rocks of lofty mountains. In Kan-su, for instance, it breeds mostly in the alpine region, at heights of from 10,000 to 12,000 feet above the sea; it is very rare in the median zone, and descends to the low parts when in search of food.

The nests, several in a row, are stuck to overhanging rocks, and by their shape resemble those of *Hirundo gutturalis*. On the 25th of June I climbed up two, and found in one of them two and in the other four young, almost fledged.

In Kan-su the first birds arrived on the 20th of April, and left about the middle of August. We at this time observed tolerably large flocks flying southwards.

Our specimens from Kan-su differ from Gould's description by being

* Proc. Zool. Soc. 1871, p. 347.

somewhat larger and having some black markings on the throat, by which they seem to approach the Japanese *Chelidon blakistoni*, Swinh.

Measurements of a male — length 5''·2, width 10''·5, wing 4''·1, tail 1''·95.

35. UPUPA EPOPS, L. *Udod pustoshka*.

A common species in S.E. Mongolia, dwelling in the hilly plains, and in particular the vicinities of inhabited and deserted villages, in which latter it breeds numerously in the stone walls built up by the Mongols for keeping their sheep; also on rocks and loose stones nests were found by us. On the 10th of June we noticed the first fledged young.

In Ordos and Ala-shan *Upupa epops* is tolerably abundant, but is very scarce in Kan-su, where the first birds were observed by us to arrive on the 16th of April, whilst in S.E. Mongolia they make their appearance in the middle of March. The autumnal migration in Mongolia, as well as in Kan-su, takes place in the end of August and beginning of September; and at this time we met with a few specimens even in the alpine region of the Kan-su mountains.

36. SITTA VILLOSA, J. Verr. *Popolsen cosmatey*.

Sitta villosa, J. Verr. Nouv. Arch. du Muséum, 1865, t. i. pl. v.

Was found by us in the Ala-shan mountains and about Kan-su, inhabiting principally the wooded localities of the low and median zones.

The habits of the present, as well as of the succeeding species, are similar to those of their European congeners. The voice of *Sitta villosa* differs from the two following species; and we have seen it catching insects on the wing. I am not aware if this is done by its European relations.

Specimens obtained in Kan-su in the month of August were moulting.

In autumn they congregate in small flocks of three to five, and often are seen in company with Titmice.

Measurements :—

	Length. in.	Width. in.	Wing. in.	Tail. in.	Tarsus. in.	Gape. in.
♂ . .	4·7	8	2·75	1·72	0·6	0·72
♀ . .	4·5	7·5	2·65	1·54	0·58	0·68

37. *SITTA SINENSIS*, J. Verr. *Popolsen kitayskey*.

Sitta sinensis, J. Verr. Nouv. Arch. du Muséum, 1873, t. ix. pl. iv.

This and the preceding species have been already observed in China by Père David. We found it only in the Muni-ul mountains, and then but a single specimen. It measured—length 5", width 9", wing 2"·94, tail 1"·8, tarsus 0"·7, gape 0"·73.

38. *SITTA AMURENSIS*, Swinh. *Popolsen amurskey*.

We met with this species only in the mountains north of Gu-bey-key. In Ussuri country it is extremely common, inhabiting the fir-woods, the thick groves on shores, and islands. In autumn it is frequently seen in company with *Parus cyaneus*.

Measurements :—

	Length. in.	Width. in.	Wing. in.	Tail. in.	Tarsus. in.	Gape. in.
♂. Ussuri . . .	5·2	?	3·2	1·76	0·68	0·8
♀. Gu-bey-key .	4·7	7	2·92	1·68	0·64	0·78

39. *CERTHIA FAMILIARIS*, L. *Pischuha sverchok*.

We met with this species in the Kan-su mountains only, where it is very

rare. On comparing it with European specimens I did not find any difference between them.

Measurements of a male—length 5", width 7"·5, wing 2"·5, tail 2"·06, tarsus 0"·63, culmen 0"·76.

40. TICHODROMA MURARIA, L. *Stenolas crosnokriley*.

This pretty bird occurs but seldom in the mountains of S.E. Mongolia, but is very common in Kan-su, especially in the alpine region. As usual, the rocks are the principal habitat of the Wall-Creeper; but we also found them in the beds of mountain-streams, to which places they usually come after much rain, when the wet rocks are suitable for climbing.

It looks very singular to see the species searching for food together with *Cinclus cashmeriensis* and *Chamarrhornis leucocephala*. When moving over a horizontal space it spreads out its wings, closing them only for short intervals when running over soft ground. Altogether we noticed that it does not dislike running on the earth, especially on the borders of brooks and creeks after rain. This observation is just opposite to Girtanner's and Brehm's beautiful description of the habits of this Creeper (Ill. Thierl.).

We observed these birds very busily engaged in searching for food immediately after sunrise, about 5 o'clock A.M., which again disagrees with Girtanner's statement, according to which it leaves its resting-place very late in the morning—*i. e.* when the rocks are dried from the night's dew.

The note is a soft and squeaking whistle. We heard it only in spring in Kan-su, during the breeding-season. The male often sings whilst climbing on the rocks or on the wing.

In Tibet also we obtained it; and our specimens differed from European ones by their larger size, darker colour, and principally by the short bill. The latter, however, is very variable; but still all our four specimens had a conspicuously short bill, its length being nearly equal in all.

Measurements :—

	From Kan-su.			From Tibet.
	♂. in.	♂. in.	♂. in.	♀. in.
Length . . .	6·3	6·4	?	?
Width . . .	11·1	11·7	?	?
Wing . . .	4·15	4·15	4·05	4·07
Culmen . . .	0·9	0·93	0·93	0·92
Gape . . .	1·15	?	1·23	1·08
Tarsus . . .	0·9	0·91	0·87	0·9
Middle toe . .	0·63	0·65	0·68	0·6
Middle claw .	0·27	0·27	0·27	0·26
Hind toe . .	0·5	0·48	0·48	0·48
Hind claw . .	0·47	0·46	0·45	0·47

41. TROGLODYTES FUMIGATUS, Temm.

Troglodytes fumigatus is rather scarce in S.E. Mongolia. We found it in the hills of Guchin-gurb, which were covered with bushes; also about Muni-ul. It does not occur in the Ala-shan mountains; but some were obtained by us in Kan-su, even in the alpine region, as high as bushes grow.

Only one young specimen was preserved from Kan-su; and we therefore cannot state whether it belongs to the present species or the Himalayan *T. nipalensis*, Hodgs. In size this example does not differ from *T. fumigatus*; whilst *T. nipalensis* is smaller. The colour, however, is dark; but this might be attributed to the bird's being young.

I cannot with certainty state whether this bird is resident or migrant in the localities visited by me; but I believe that it migrates for the winter, as on the 19th of September I came across one in the alpine region of Kan-su which seemed to me to be migrating. It was very much exhausted, and sat

down on the snow to rest. In spring, about the end of April, I saw some small flocks which, judging from their behaviour, were migrating.

In Ussuri country it is very scarce, and winters on the coasts of the Japanese sea.

Measurements :—

	Length.	Width.	Wing.	Tail.	Tarsus.	Culmen.
	in.	in.	in.	in.	in.	in.
♀. ? Ussuri . . .	3·8	?	1·9	1·33	0·6	0·57
♂. Muni-ul . . .	3·5	5·7	1·83	1·16	0·67	0·58
? (young). Kan-su .	?	?	1·82	1·2	0·65	0·58

42. RHOPOPHILUS PEKINENSIS, Swinh.

Is resident in those mountains of Mongolia where trees and bushes abound; the latter especially are its habitations. It usually keeps close to the ground, and very cleverly climbs between them. Its flight is very weak; and it never flies over great distances, but only from bush to bush. The song is rather pleasant, but very short.

We also observed it in the Ala-shan mountains, and once in the Hoang-ho valley. It does not occur in Kan-su, and is replaced in Tsaidam by the variety β (var. *major*, major et pallidior).

Comparative measurements :—

	Length.	Width.	Wing.	Tarsus.	Culmen.
	in.	in.	in.	in.	in.
<i>Rhopophilus pekinensis</i> . .	7	?	2·42	0·91	0·64
β . var. <i>major</i>	7·7	8	2·7	0·89	0·64

The latter was observed only in Tsaidam. It inhabits the thick bushes (*Nitraria schoberi*), on the berries of which it feeds in autumn and winter.

Early in spring, about the middle of February, the males were singing in the mornings; and soon after, this species commenced building.

43. CALAMODYTA ORIENTALIS, Temm. & Schleg. *Camishevka vostochnaya*.*Calamodyta orientalis*, Temm. & Schleg. Faun. Jap. pl. xx.

This eastern form of the European *C. turdoides*, Meyer, differing from the latter only by its smaller size, has been obtained by us in the Hoang-ho valley and the Southern Ala-shan, on a small marsh called Bajan-Bulik. At this place a small spot covered with reeds was sufficient to give a home to this little bird in the middle of a frightful desert. By its voice and habits it does not differ at all from the European species. It is common in Ussuri country, especially in the marshy plains east and south of Lake Honka. In spring it arrives in these localities early in May; and from that time until the end of the summer its song can be heard daily. It breeds in the reeds and thick bushes near the water. The young ones leave the nest about the end of June.

44. ARUNDINAX AËDON, Pall. *Camishevka solovey*.

Only once, in the middle of August 1873, did we come across a specimen, which was lying dead in Gobi, where it evidently died from want of food during migration, as, on opening the stomach, it proved to be quite empty. In Ussuri country it is tolerably common, and inhabits the thick bushes on the shores of rivers.

45. DUMETICOLA AFFINIS, Hodgs.

Was procured by us in Kan-su only, where it principally breeds on grassy plains of the alpine region. The voice is tolerably loud. A male obtained by us alive measures—length 5"·2, wing 2" 25, tail 2"·1, tarsus 0"·74, culmen (black, with the base of the lower mandible yellow) 0"·38, gape 0"·57.

46. LOCUSTELLA CERTHIOLA, Pall. *Camishevka priatlivaya*.

Is tolerably abundant in the Hoang-ho valley, but is very rare at Ala-shan and Halha, inhabiting only small clear marshes. We did not obtain it more than once in Kan-su. It is extremely common in Ussuri country. On the coasts of the Japanese Sea I observed the species migrating in the early part of October.

47. SYLVIA CURRUCA, Lath. *Slavka peresmeshka*.

By no means scarce in S.E. Mongolia, the Hoang-ho valley, and the plains of Ala-shan, where it inhabits the saksaulnic thickets. In the Ala-shan and Kan-su mountains we did not meet with a single specimen. The first birds arrived in the Hoang-ho valley about the commencement of May, when the males begin singing, frequently flying up into the air from thirty to forty feet; and then, vibrating with their wings, they slowly descend on bushes or small trees. This strange performance I have observed at home executed by *S. cinerea*, but not by *S. curruca*.

48. SYLVIA ARALENSIS, Eversm. *Slavka aralskaya*.

We observed it only in the bush-covered Ala-shan plains, in pairs and single specimens, but even there very scarce. In the latter part of May we found a nest in a small hole of a clayey cliff. It was built very carelessly, and without any lining, and contained two quite fresh eggs, of a rather large size; they measure 0''·75 and 0''·61 in their respective diameters, are of a rounded conical shape, of a light blue colour, marked with small reddish spots, which form a sort of ring at the larger end of the egg.

We did not find this species anywhere else; and its northern limit of distribution seems to be formed by the southern portion of Gobi, whilst the eastern is formed in Ordos by the edge of the desert.

49. PHYLLOPNEUSTE PLUMBEITARSA, Swinh.

Phyllopneuste coronata, Midd. nec Temm.

Is very abundant in the Kan-su mountains, where it generally confines itself to the wooded cliffs. It appeared there in the middle of May; but the snow, which fell after its arrival, destroyed a great many, and I found dead ones, and some others so weak that we caught them with our hands.

50. PHYLLOPNEUSTE XANTHODRYAS, Swinh.

According to Swinhoe this is the largest Warbler that occurs in China; It is closely allied to *Ph. borealis*, Blas., but differs from it in size and in other points enumerated by Swinhoe (P. Z. S. 1863, p. 296). Measurements of the male—length 5''·4, width 8'', gape 0''·58, wing 2''·77, tail 2''·17, tarsus 0''·72, middle toe 0''·42, hind toe 0''·24.

We found it only in the Kan-su mountains, where it inhabits the wooded districts and is rather scarcer than the preceding species, although common enough.

51. PHYLLOPNEUSTE BOREALIS, Blas. *Penochka severnaya*.

Phyllopneuste eversmanni, Middendorff, Sibirische Reise, t. ii. p. ii. pl. xvi. figs. 1-3.

Tolerably common in the mountains of S.E. Mongolia, especially at Muni-ul. In Northern Ala-shan, about the beginning of May, we saw several migrating about the steppes; and here also this lively and clever bird has the same habits as in other localities. It is scarce in Ussuri country; and I cannot say if it breeds there or not.

52. PHYLLOPNEUSTE FUSCATA, Blyth. *Penochka temnaya*.

Phyllopneuste sibirica, Middendorff, Sibirische Reise, t. ii. pl. xvi. figs. 4-6.

Like the preceding species, it is very common in S.E. Mongolia, but

does not inhabit Kan-su. In the end of August we met with *Ph. fuscata* very frequently in the Hoang-ho valley, probably during migration; and in May we found it again in Northern Ala-shan. It breeds numerously in Ussuri country; and the first migrants arrived at Lake Hanka on the 12th of April, 1868.

53. ABRORNIS ARMANDII, M.-Edw.

Abrornis armandii, Milne-Edwards, Nouv. Arch. du Muséum, i. 1865, pl. ii. fig. 1.

Found rarely in Muni-ul, and does not occur in Kan-su and Ala-shan. Measurements of the male—length 4"·9, wing 2"·27, tail 2"·03, culmen 0"·4, tarsus 0"·8, hind toe 0"·26, its claw 0"·18.

54. ABRORNIS AFFINIS, Hodgs.

Only in Kan-su, and does not go further north; keeps to the wooded districts, especially in groves near rivers and brooks. Measurements of a female—length 4", wing 2"·1, tail 1"·67, gape 0"·51, tarsus 0"·67.

55. REGULOIDES PROREGULUS, Pall. *Slavka corolek*.

We obtained specimens in Kalgan and Muni-ul, and found it common about Lake Hanka during the spring migration, which commences in the early part of April and lasts to the beginning of May.

56. REGULOIDES SUPERCILIOSUS, Gmel.

Breeds in S.E. Mongolia, but does not occur either in Ala-shan or in Kan-su. The first migrants were noticed on the 12th of April, at Muni-ul, when they kept mostly in the bushes of the high region of mountains, and on fine days were singing heartily.

In marching through Gobi we at times met with a few migrating *R. superciliosus*, and found it to be common in Ussuri country.

57. *REGULUS HIMALAYENSIS*?, Blyth. *Corolek hymalayskey*.

Only one male was obtained by us, in Kan-su, in August, in bad plumage; and consequently I cannot definitely state whether it belongs to *R. japonicus* or *R. himalayensis*, which latter is very close to *R. cristatus* of Europe. I marked my specimen under the questionable name of *R. himalayensis*, as only this species has been found by Père David in Mupin. Measurements—length 3"·8, wing 2"·03, tail 1"·4, culmen 0"·47, tarsus 0"·62.

In Ussuri country I once met with a pair of Crested Wrens. I shot the male, and entered it in my book as *R. flavicapillus*; but as the specimen was very much mutilated I did not preserve it, which I now much regret, as I did not meet with it again.

58. *RUTICILLA AUROREA*, Pall.

Ruticilla aurorea, Temm. & Schleg. Faun. Japon. pl. xxi.

This Redstart is very common in S.E. Mongolia, and breeds in the bush-covered and wooded mountains, particularly so about Muni-ul. The first migrants arrived on the 21st of March, and paired early in April. At that time the males often fight, running against each other with spread wings and tail, and constantly uttering a short hissing note. By the end of June the young had left the nest; one, however, with unfledged young was found by us in the middle of July: probably it was a second brood of the year.

R. aurorea is extremely partial to woods, and does not occur in localities where there are no trees and bushes. I cannot with certainty state whether it breeds in Ala-shan or not. It does not appear to inhabit Kan-su, but is common in Ussuri country and about Lake Hanka. The first migrants arrived in the beginning of April.

59. *RUTICILLA RUFIVENTRIS*, Vieill. *Crasnochvostka rijebruchaya*.

We obtained specimens in S.E. Mongolia only in the Suma-had and Shara-had mountains; and even in these localities it appeared to be scarce, inhabiting the bushes that grow near rocks and in clefts. In Ala-shan we found it breeding. In Kan-su we did not observe a single specimen during the summer of 1872, but next spring noticed the first migrants on the 4th of April at the sources of the Tetung-gol, where they kept to the small bushes singly and in pairs. Strange to say, we did not find one in April and May along the Tetung-gol, and therefore cannot say whether it breeds there or not. Measurements of the male—length 6"·1, width 9"·5, wing 3"·47, tail 2"·54, culmen 0"·42, tarsus 0"·92. We did not succeed in obtaining a female.

60. *RUTICILLA FRONTALIS*, Vig.

Ruticilla frontalis, Gould, Century of Birds, pl. xxvi. fig. 1.

Ruticilla melanura, Lesson, Rev. Zool. 1840, p. 265.

The above figure of Gould's is bad; but Lesson's diagnosis is complete enough, and by this the present species has been identified.

We found *Ruticilla frontalis* only in Kan-su, where it is rather common. In the wooded and alpine districts the first migrants were observed on the 8th of April; and on the 10th I found a nest, situated on the ground under a rotten stump. It was constructed of moss, bass, and the feathers of *Crossoptilon auritum*; the latter, being extremely soft, are very convenient for lining, and are often found in nests of the Kan-su birds. The eggs, four in number, were quite fresh, of a dirty white colour, covered with indistinct reddish-brown spots, which are thickest at the larger end of the egg; large diameter 0"·73, small 0"·58. After leaving the nest the young keep in families, whilst the old birds commence moulting; at least, this was the case with all adult specimens shot by us in August.

We did not notice the autumnal migration, which most likely takes place



CALLIOPE TSCHEBAIEWI, PRZEW. ♂
 RUTICILLA ALASCHANICA, PRZEW. ♂

towards the end of August or beginning of September, that being the time when most of the Kan-su songsters depart for the south.

61. *RUTICILLA SCHISTICEPS*, Hodgs.

The mountainous parts of Kan-su are very rich in Redstarts; but the preceding, present, and succeeding species are by far the commonest.

R. schisticeps keeps mostly to the wooded valleys of the mountains, and is found also in large woods, but has not been known to ascend to the alpine regions. We found it in Kan-su at the end of April and in the beginning of May very numerous; and on the 11th of May a nest with four quite fresh eggs was taken. These eggs are of a rather bright flesh-colour, and sometimes marked with hardly perceivable brownish spots; large diameter 0".76, small 0".58. The nest was situated in an indentation of a rock, about 1 foot deep, and was constructed of moss and animal wool, lined with the feathers of *Crossoptilon auritum*.

The limit for the present as well as many other species is formed by the Kan-su mountains.

62. *RUTICILLA HODGSONI*, Moore. *Crasnochvostka Hodgsona*.

Ruticilla hodgsoni, Moore, P. Z. S. 1854, pl. lviii.

Does not go northwards beyond Kan-su, and inhabits the wooded districts of the mountains. It does not differ in its habits from any of the other Redstarts. Its spring migration probably takes place at the end of April, when we found it in the mountains. Measurements of a male—length 6".5, width 9".5, wing 3".25, tail 2".7, culmen 0".4, tarsus 0".92.

63. *RUTICILLA ALASCHANICA*, n. sp. *Crasnochvostka ala-shanskaya*.
(Plate LIV. i. fig. 2.)

Rufo-ferruginea, dorso vividiore; vertice et nucha cyaneo-plumbeis; alis nigricantibus, fascia lata

obliqua; speculo marginali et margine lato tertiariorum albis; binis mediis rectricibus nigricantibus. Rostro et pedibus nigris.

Fem. supra brunnescenti-grisea, subtus griseo-fulvescens; uropygio et cauda rufo-ferrugineis; alis brunneo-nigricantibus, tectricibus et tertiaris fulvo limbatis; rectricibus binis mediis nigricantibus.

Measurements:—

	Length.	Width.	Wing.	Tail.	Gape.	Tarsus.	Middle toe.
	in.	in.	in.	in.	in.	in.	in.
♂ . .	7	10·5	3·5	3·23	0·67	0·8	0·53
♀ . .	6·7	10·3	3·45	3·3	0·65	0·82	0·53

Quills—4th=5th longest, $6 > 3 > 7$, $2 = 8$; first twice the length of its upper coverts. In the rounded tail the two central feathers protrude. Culmen black; legs blackish; iris brown.

Male.—Head, back of neck, and the upper portion of its sides lead-blue, in autumn tipped with brown. The upper and under parts of the body (excluding the white middle of the back part of the stomach), as well as the tail (except the two black central feathers), dark reddish brown, with an orange shade on the back. Quills dark brown, tertiaries marked with wide white edges; the white line between the shoulders and the white spot on the wing are formed by the upper wing-coverts, most of which are black; the under wing-coverts are white.

Female.—Above greyish brown, with a red tint in it; below pale yellow, in autumn shaded with grey on the breast and sides of the neck; centre of stomach yellowish white; rump, upper and under tail-coverts, and tail (with the exception of the two black central tail-feathers) rusty red. Wings dark brown, with broad yellow edges on the tertiaries, and the large and median wing-coverts white.

The plumage is very soft in both sexes.

The first birds of this new species were obtained by us in Ala-shan,

which is its northern limit; it breeds in the middle and highest districts of the mountains. The autumnal migration takes place in October, in which we found it sparingly distributed throughout the Kan-su mountains.

64. *RUTICILLA FULIGINOSA*, Vig.

Ruticilla fuliginosa, Henderson & Hume, Lahore to Yarkand, pl. xv.

This Himalayan Redstart was obtained by us only in Kan-su; but even here we found it very scarce, keeping exclusively to the small mountain-brooks, near which it probably breeds. A male bird shot in the end of August, was just moulting. In September my companion noticed, at the river Ranghta, a small migrating flock. The first spring migrants were seen by us in May; but I believe they usually arrive earlier.

This species does not occur north of Kan-su.

65. *RUTICILLA ERYTHROGASTRA*, Güld. *Crasnochvostka crasnobruchaya*.

Ruticilla erythrogastra, Gould, Birds of Asia, part iii. pl.

In China proper and Amurland this bird does not occur; and we saw it only in the Kan-su mountains, where it must be extremely scarce, as during the whole summer we only found one pair, at an absolute height of 13,000 feet. In September and October, however, we frequently met with this species, singly and in small flocks, on its migration along the river Tetung-gol and about Koko-nor. In the spring of 1872 the first birds arrived at the above localities on the 12th of April; and I believe I saw some on the 20th of March 1872 in the Suma-had mountains, but am not quite certain whether they belonged to this species. It differs from the other Redstarts in its habits, and more resembles the succeeding species.

66. CHÆMARRHORNIS LEUCOCEPHALA, Vig. *Crasnochvostka belogolovaya*.

Chæmarrhornis leucocephala, Gould, Cent. of Birds, pl. xxvi. fig. 2.

This beautiful large Redstart was found by us throughout Kan-su, except the alpine regions of the mountains. It usually keeps close to mountain-brooks and rivers, especially if the shores are wooded; and each pair seems to have a certain district to itself, where it breeds. By its habits it reminds one of the Dippers, with whom it can be very often seen flying from one stone of a brook to another, low over the water, and only in exceptional cases alights on trees. Whether on wing or when sitting, these birds often utter a loud squeaking note; but I have never heard them sing.

The first migrants were noticed on the 12th of April; and in the middle of May they were sitting on eggs. The young birds leave the nest about the end of June or beginning of July, and keep in families until the autumn. In August the old birds were moulting so quickly that some of them could hardly fly; but after September we did not meet with any of this species.

The Kan-su mountains form its northern limit of distribution. The female does not differ from the male in plumage.

Measurements:—

	Length. in.	Width. in.	Wing. in.	Tail. in.	Culmen. in.	Tarsus. in.
♂ . .	8	11.5	4.05	3.3	0.5	1.3
♀ . .	7.4	11	3.75	3.1	0.48	1.2

67. LARVIVORA CYANEA, Pall.

Larvivora cyanea, Radde, Reisen im Süden von Ost-Sibirien, pl. x. figs. 1-4.

Inhabits S.E. Mongolia in limited numbers. About the middle of May they kept mostly to the thick bushes, but did not appear to remain to breed

there. One specimen was obtained, however, on the 10th of September, in Ala-shan. About Lake Hanka we noticed it also only on migration, and therefore cannot say whether it breeds there or not.

68. NEMURA CYANURA, Pall.

Nemura cyanura, Temm. & Schleg. Faun. Japon. pl. xxi.

This species was met with by us for the first time in the Ala-shan about the end of September and beginning of October 1871. It breeds commonly in the wooded parts of Kan-su, whither it arrives in April; after that time the male birds sing beautifully.

One-year-old males resemble the female birds in plumage; whilst in old males the blue colour is brighter, especially on the rump and the small and median wing-coverts; also the quills and tail-feathers are edged with blue. Measurements of an old male—length 5"·7, width 9", wing 3"·2, tail 2"·53, culmen 0"·37, tarsus 0"·97.

About Lake Hanka the first migrants arrive in the beginning of April, and are common until May. In summer, however, I did not see a single specimen, although Maack states he found it breeding sparingly in the Ussuri country.

69. HODGSONIUS PHÆNICUROIDES, Hodgs.

Hodgsonius phænicuroides, Henderson & Hume, Lahore to Yarkand, pl. vi.

Only one specimen was obtained, in the Kan-su mountains, near Chertinton. The bird was flying about some bushes at the edge of a wood. I am sorry to say that the specimen (a male) was very much mutilated by the shot. It measured in length 7", width 8"·5, wing 2"·92, tail 3"·13, culmen 0"·51, tarsus 1"·1, middle toe 0"·7, hind toe 0"·33, hind claw 0"·27.

It occurs to me that this species breeds in Kan-su, in which, however, it has not been observed.

70. CYANECULA CÆRULECULA, Pall. *Varakusha*.

Does not appear to breed in Mongolia, and was found by us only during migration, about the end of August and beginning of May, in the northern bend of the Hoang-ho. The birds were flying about singly in the bushes and groves of trees. About August we met with some migrating specimens in Central Gobi. In Kan-su we did not meet with any.

71. CALLIOPE KAMTSCHATKENSIS, Gmel. *Solovey crasnosheyka*.

Calliope kamtschatkensis, Gould, Birds of Europe, pl. cxviii.

During the spring migration we observed a single specimen in the Hara-narin-ul mountains, but found it tolerably abundant in the wooded parts of Kan-su, where it principally keeps to the thickets close to rivers and brooks, and cleverly climbs about in the trees, like our European Bluethroat, which it very much resembles in its habits.

The birds arrived at Kan-su about the commencement of May, and occurred singly or in small flocks (five to eight individuals). By the middle of May they had selected their localities; and from that time the splendid singing of this bird could be heard in all the mountain-valleys, especially in the morning. It breeds but sparingly about Hanka, but is very numerous there during migration.

72. CALLIOPE TSCHIBAIEWI, n.sp. *Solovey Chebaewa*. (Plate LIV. i. fig. 1.)

C. pectorali similis, sed area gulari rubra majore, et mystacibus albis ut in *C. kamtschatkensi*.

The more exact particulars as to the differences between this and the closely allied *C. pectoralis* are the following:—

(a) Crown, back, and rump dark olive-colour; whilst in *C. pectoralis* they are dark grey.

(b) The red band on the throat is much wider.

(c) From the lower mandible and under the cheeks there is a white line (like that of *C. kamtschatkensis*), which *C. pectoralis* does not possess, or at least only very faintly marked.

(d) The white eyebrows are much narrower; in *C. pectoralis*, however, they almost join each other on the forehead.

(e) The black band on the tail of my bird is much wider.

Measurements:—

	Length.	Wing.	Tail.	Tarsus.	Gape.
	in.	in.	in.	in.	in.
♂ <i>C. pectoralis</i> . .	?	3	2·62	1·12	0·69
♂ <i>C. tschebaiewi</i> .	6·5	3·02	2·63	2·25	0·75

Quills 4=5 longest, 6=3 somewhat shorter, 2=(almost) 9; first twice as long as its coverts. In the sharply rounded tail of twelve feathers, the outer ones are 0"·35 shorter than the central. Culmen black; tarsus in front black, behind horn-coloured; toes blackish; claws black; iris dark brown.

Male.—Crown, back, and rump dark olive; and the same shade is also perceivable on the back and sides of the neck, and also on the ear-coverts; the small and median upper wing-coverts are dark grey. Moustachial stripes and eyebrows white; chin and centre of throat bright silky crimson; the edge separating the latter colour from the white moustachial stripe, lores, and crop are black. Breast, stomach, and vent white; sides olive-grey. Quills and large wing-coverts brownish, with wide edges of the colour of the back; under wing-coverts grey. Two central tail-feathers blackish brown; the others are black with a white base and white spots on the ends; the upper tail-coverts are blackish grey.

Female.—Dark olive-colour above, dirty white underneath; sides of neck and crop dirty grey. Flanks olive-grey; eyebrows white; ear-coverts brown; lores black. Quills and their large upper coverts brown, widely edged with the colour of the back; lesser coverts dirty grey; under wing-

coverts yellowish. The two central tail-feathers dark olive-colour; the others black, with a white spot on the end, but without a white base; only small white spots are perceivable on the base of the second and third quills.

This species, called by me after my travelling companion, was found by us only in the Kan-su mountains, and is much rarer than *C. kamtschatkensis*; it most probably inhabits only the bushes of the alpine region, and there principally the neighbourhood of brooks and rivulets. We did not succeed in finding a nest; but in the latter part of May I killed a female bird in which I found a completely developed greenish egg, which, however, was broken by the shot and could not be measured correctly. In its habits it very much resembles the preceding species, and does not occur north of Kan-su.

73. GRANDALA CÆLICOLOR, Hodgs.

Grandala caelicolor, Gould, Birds of Asia, part xiv. pl.

This beautiful bird, inhabiting the highest rocks of the Himalayas, was met with by me only in the alpine region of the Kan-su mountains, not below 12,000 feet above the sea-level. I noticed it for the first time on the enormous rocks and cliffs of Mount Sodi-soruksum, about the end of July: there was a small flock, consisting of old moulting birds as well as young, which somewhat resembled the females in their plumage and were flying about from one rock to another uttering now and then a peculiar and rather feeble whistle; I never heard them sing. Not being pursued by man, these birds are very tame, and even when shot at they do not go away any considerable distance. In August we noticed several flocks, some of them fifty in number, flying about Mount Gadjur, and alighting now and then on the rocks and cliffs. The first spring arrival of them we observed on the 20th of April, in the alpine regions about Tetung-gol; but having left the high mountains about that time, we could not watch their breeding-habits. *Grandala caelicolor* also does not appear to occur north of Kan-su.

74. SAXICOLA ŒNANTHE, L. *Checcan poputchick*.

Occasionally we met with the Wheatear in S.E. Mongolia, Ala-shan, and Halha. In the two former localities it appeared to be rather scarce. It breeds in the mountain-valleys; and the first spring migrants arrived at Muni-ul about the 9th of April. We did not find it in Kan-su.

75. SAXICOLA MORIO, Ehrenb.

This Chat, so closely allied to *S. leucomela*, is commoner than the preceding species in S.E. Mongolia and Ala-shan, but is scarce in Kan-su and Halha. In the spring of 1871 we observed the first migrants on the 25th of March, at Dalai-nor; and in the following year we noticed them in the Shara-had mountains on the 13th of the same month. They breed in the mountain-valleys; and the young leave their nests about the middle of June. In S.E. Mongolia and in the vicinity of Dadjin we saw the young ones flying about on the 29th of May. Measurements of a male—length 6", width 10"·5, wing 3"·8, tail 2"·63, culmen 0"·51, tarsus 0"·88.

76. SAXICOLA ATROGULARIS, Blyth. *Checcan chernogorloy*.

Saxicola atrogularis, Gould, Birds of Asia, part xvii. pl.

We noticed this Chat in Ordos, Ala-shan, and Halha, but did not find it in Mongolia and Kan-su. It inhabits the most desolate parts of the desert, and usually localities where sagsauls grow in abundance. It breeds often in the walls of wells; and we found a nest in such a place, but could not get at it. In the deserts it appears to replace the two preceding species, from which it differs little in its habits. We did not observe it in China proper, and therefore concluded that the Ordos forms its eastern boundary and the bend of the Hoang-ho or the Hurha mountains its northern limit.

77. SAXICOLA ISABELLINA, Rüpp. *Checcan solovey*.

Saxicola isabellina, Rüppell, Atlas Vög. t. xxxiv. fig. 2.

This, the common Chat of Mongolia, distinguishes itself very much by its song in the early spring, when no other birds have commenced singing; even the Mongols esteem this little fellow, which they call "Zok-zoki;" and during the breeding-season it often sings for hours on fine days, especially so in the morning and evening, constantly rising in the air to a height of about fifty feet, and descending onto a stone or elsewhere: it continues singing whilst sitting or running on the ground. Besides its own particular song, which I cannot very well describe in words, it very cleverly imitates those of other species: not only does it quack like a duck, whistle like a snipe, sing like the lark, but even attempts to mock the barking of a dog or the neighing of horses.

About the middle of March, or very little later, it arrives in S.E. Mongolia, when its songs can everywhere be heard. Like other Chats, it inhabits the stony mountain-plains and valleys, but occurs also in the mountains; and we observed it in the alpine meadows of Muni-ul. If several pairs choose a certain district for their habitation, the males are constantly fighting: puffing themselves out, they run against each other; then they fly up and continue their quarrel in the air until they are tired out, when they sit down and rest in order to commence the fray again. The females do not quarrel, but watch the fighting males.

It commences breeding very early, so that on the 10th of May we saw some young ones which had left the nest. The latter is usually constructed in the old holes of *Lagomys agotona*; but at times holes are dug by the birds themselves, which is proved by the following fact:—My companion dug out a nest, containing four young birds, which, however, he did not take, as it was early in the morning. About noon of the same day he again visited the nest, and found that a fresh hole was dug and the four young had disappeared. On examining this newly dug hole, which was two feet deep, we found in it the young ones; and the freshly turned-up earth left no doubt

as to the parents having executed this work within the short time allowed to them by us. I also noticed that the nesting-holes of *S. isabellina* are always deeper and straighter than those of *Pyrgilauda davidiana*, which often occur very close to the present species.

It breeds also in Kan-su and about Koko-nor; and it is very remarkable that, notwithstanding the more southern situation of this lake, *S. isabellina* does not appear there until the 1st of April, *i. e.* about two weeks later than in S.E. Mongolia.

78. PRATINCOLA INDICA, Blyth. *Checcanchick indeyskey*.

This eastern representative of the European *P. rubicola* was found by us breeding in small numbers in the alpine regions of the Kan-su mountains. The first birds were noticed on the 5th of April.

About Lake Hanka they arrive towards the end of April, and breed there numerously in the bush-covered steppes. They do not differ in their habits or voice from our *P. rubicola*.

79. ACCENTOR NIPAENSIS, Hodgs. *Savirushca nipalskaya*.

Accentor nipalensis, Gould, Birds of Asia, part vii. pl.

We found it in Kan-su; but Swinhoe records its occurrence about Lake Baikal, and consequently it must migrate across the desert. Our specimens differ from Gould's figure by having the upper tail-coverts and the rump light brown, but not so bright as in *A. erythropygius*, Swinh. (Gould, 'Birds of Asia,' part xxiii.). Only one of our specimens (a male, obtained in July) has a completely grey rump, like *A. alpinus*, to which it is very closely allied. Measurements—length 7', width 11"·5, wing 4"·2, tail 2"·95, culmen 0"·52, tarsus 0"·97.

It is common in Kan-su, belonging exclusively to the alpine region. In its habits it very much resembles our European *A. alpinus*, and sings equally well. After leaving the nests, the young birds keep in families; and we

often met them in the mountain-meadows about the end of August. The different families assemble in large flocks of one or two hundred, and about the middle of September leave for the south, to arrive again in spring about the middle of April.

80. ACCENTOR MONTANELLUS, Pall. *Savirushca gornaya*.

Accentor montanellus, Gould, Birds of Asia, part xxiii. pl.

We only once observed a flock of this species in Ala-shan. It was during the autumnal migration, in the month of September; and another time we met with it near Lake Hanka, during the spring migration, which takes place in April and May; and at that time it was common in the bushes and grass of the Tungatchin steppes.

81. ACCENTOR FULVESCENS, Sev.

Accentor fulvensens, Sev. Vert. i Gor. raspr. Turk. Jevot. p. 132.

Is very closely allied to the preceding species, but differs from it constantly (*a*) by the want of the black spots on the breast; and although there are now and then some other blackish stripes on the flank, they are hardly perceivable; (*b*) the present species has a whitish throat and pure white eyebrows; (*c*) the upper parts of the body are greyish, and not rusty brown, like *A. montanellus*.

The comparative measurements are the following:—

	<i>A. montanellus.</i>		<i>A. fulvensens.</i>	
	♂	♀	♂	♀
	(from Ussuri). in.	(from Ala-shan). in.	(from Ala-shan). in.	(from Gobi). in.
Length . . .	5·75?	6	6·4	5·7
Wing . . .	2·8	2·89	3·04	2·96
Tail . . .	2·66	2·6	2·75	2·6
Culmen . . .	0·4	0·38	0·42	0·4
Tarsns . . .	0·78	0·7	0·72	0·73

We found it throughout the whole country traversed by us, with the exception of Kan-su; and in Gobi, Ala-shan, Tsaidam, and Northern Tibet we observed it even in winter. It breeds in the alpine regions of Ala-shan.

82. *ACCENTOR MULTISTRIATUS*, David.

Accentor multistriatus, David, Ann. & Mag. Nat. Hist. vii. 1871, p. 256.

This bird, discovered by Père David in Sichuan, and closely allied to *A. strophiat*us, Hodgs., was obtained by us only in Kan-su, where it reaches its northern limit, and sparingly breeds in the wooded districts, but does not ascend to the alpine regions. In spring the males sing very nicely.

Measurements of a male—length 6", width 7"·5, wing 2"·62, tail 2"·53, culmen 0"·42, tarsus 0"·74.

83. *ACCENTOR RUBECULOIDES*, Moore.

Accentor rubeculoides, Gould, Birds of Asia, part vii. pl.

We found the species on the highest Kan-su mountains, but very rarely in the lower wooded districts. It arrives here very early (*i. e.* in March), and breeds plentifully in April. The song somewhat resembles that of *Ruticilla aurea*, but finishes with a peculiar note somewhat resembling the rustling of the leaves. This, as well as the preceding species, does not occur north of Kan-su.

84. *PARUS MINOR*, Temm. & Schleg. *Sinitza malaya*.

Parus minor, Temm. & Schleg. Faun. Jap. pl. xxxiii.

We obtained this Titmouse only in Kan-su; but Père David has also obtained it in Mongolia and China. In voice and habits it does not differ

from our *P. major*, keeping to the wooded mountain-districts of Kan-su. I met with *P. minor* also in Ussuri and about Lake Hanka, where the young had left their nests already in the middle of June.

† 85. *PÆCILE AFFINIS*, n. sp.

P. cinctæ simillima, sed capite nigro.

The present species is very closely allied to *P. cincta*, Bodd., but differs from it in the following characters:—(a) The crown of *P. affinis* is not dark brown, but coffee-black, like *P. lugubris*: but the black mark of the head does not reach far on the back; it is just like that of *P. cincta*. (b) Compared with the latter, the flanks and the back are much darker in *P. affinis*. (c) The wide edges of the tertiaries and wing-coverts, as well as the narrow edges of the other quills, are of the same light brown colour as the back; whilst *P. cincta* has light grey edges. (d) Sides of the neck, breast, and centre of the stomach are not so pure white as in *P. cincta*, but are shaded with brown. (e) The lower wing-coverts are reddish brown.

In size these two species do not differ; and the following are the measurements of *P. affinis* (? ♂)—length 5''·3, width 7''·5, wing 2''·63, tail 2''·38, gape 0''·42, thickness of bill at the base 0''·17, tarsus 0''·67, middle toe 0''·4, hind toe 0''·26, hind claw 0''·26. Culmen black; legs dark lead-colour; iris dark brown.

We noticed several specimens in the Ala-shan mountains, where it appears to be common, especially in the fir forests; but in Kan-su, where the firs are scarce, it inhabits the larch woods, and at times ascends to the alpine ranges.

Not having preserved any specimens from Muni-ul and the Hoang-ho valley, we cannot state with certainty whether the birds we shot there belonged to the present species or not.

86. *PÆCILE SUPERCILIOSA*, n. sp.

Supra grisea, subtus sordide rubens ; vertice, nucha, vittis superciliaribus latis gulaque nigris ; fronte et striis supra supercilia positis usque ad nucham protractis candidis ; genis abdomini concoloribus ; lateribus colli subcinereis ; alis et cauda fusco-griseis, remigibus rectricibusque pallide limbatis.

Measurements of a male—length 5"·5, width 7"·5, wing 2"·58, tail 2"·8, gape 0"·42, thickness of bill at the base 0"·19, tarsus 0"·7, middle toe 0"·25, hind toe 0"·27, hind claw 0"·23.

Quills, 4=5 longest ; the outer tail-feathers 0"·5 shorter than the central ones. Culmen black ; legs black, with a tint of lead-colour ; iris brown. Crown and throat black ; the black colour of the head extends in a narrow line down the neck. Forehead and eyebrows white ; upper parts of the body mouse-colour, which at the sides and back of the neck fades into a very pale grey. Cheeks, flanks, underparts, lower wing- and tail-coverts light chocolate, shaded with red, being rather pale on the cheeks, stomach, and under the wings. Quills, tail-feathers, and upper wing-coverts dark brown, edged with the colour of the back ; the outer tail-feathers have white exterior edges.

We found *P. superciliosa* only in the alpine regions of the Kan-su mountains, usually flying about the bushes in company with *Leptopæcile sophiæ*. Its song is rather pleasant. All those birds shot in August were moulting rapidly.

87. *LOPHOPHANES DICHROIDES*, n. sp.

L. dichroo simillimus, sed collo utrinque fascia albida signato ; iris rubiginosa.

This species is certainly closely allied to *L. dichrous*, Hodgs. (figured in Gould's 'Birds of Asia,' part xi.), but differs by having a tolerably broad white line on each side of the neck, forming a sort of neckband behind the ears, but not quite touching each other. Again, the crown and upper part of the body of *L. dichrous* are dark ashy, whilst the present species has only

the crown of that colour, and the upper parts of the body are olive-brown. The eyes of our bird are brick-red; but in Gould's drawing they are dark brown: this latter might be a mistake from having used a stuffed bird for the plate.

I am sorry to say that only one male is in our possession. It measures as follows—length 5", width 8"·3, wing 2"·95, tail 2"·27, gape 0"·52, tarsus 0"·74, hind toe 0"·3, hind claw 0"·27.

For the first time we obtained an example at Kan-su, where it keeps to the lower mountain-ranges and, as it seems, exclusively to the fir-woods. In habits it very much resembles its congeners; its voice is very thin.

88. *LOPHOPHANES RUBIDIVENTRIS*, Blyth (?).

Only two very bad specimens in summer plumage were obtained; unfortunately we omitted to mark the sex. They resembled the upper figure of Gould's plate (Birds of Asia, part xi.); but from his description, and that of the Journ. Asiat. Soc. of Bengal, 1847, pl. 446, they differ by the absence of the rusty-red rump, which in our specimens has only the slightest tint of brown; moreover ours appear to be smaller. These differences, however, might be dependent upon age or sex.

We found this bird in the wooded parts of Kan-su, and on one or two occasions even very high up in the mountains; but we never observed it north of this country.

Measurements—length 4"·3, width 7", wing 2"·6, tail 1"·87, gape 0"·4, tarsus 0"·66.

89. *ORITES CAUDATUS*, L. *Sinitza dolgochvostaya*.

A small flock was observed by us in spring about Dalai-nor, out of which a male bird was shot which exactly corresponds with specimens from

Eastern Siberia, differing from European birds by having less rose-colour on the flanks and more white on the tertiaries. I repeatedly fell in with them at Muni-ul and Kan-su, but did not succeed in obtaining any specimens, and consequently cannot state which of the three species discovered by Père David they belong to.

Birds resembling *Orites caudatus* occasionally visit Ussuri country and the coasts of the Japanese Sea; but as no specimens were collected, I cannot with certainty state that they belong to this species.

90. SUTORA WEBBIANA, Gray.

Sutura webbiana, Gould, Birds of Asia, part iv. pl.

Common in China proper, but was found by us only in the Hoang-ho valley, in August, in small flocks of from ten to twelve specimens, about the reeds and thick brushwood. They were constantly flying about from one bush to another, with great noise. The northern bend of the Hoang-ho forms the northern boundary of the geographical distribution of the species.

91. PANURUS BIARMICUS, L. *Sinitza borodataya*.

Inhabits the Yellow-River valley and the neighbourhood of Tsaidam, being extremely common in the latter locality in the reed-covered marshes. The Tsaidam specimens differ from European by their narrower moustaches.

92. LEPTOPÆCILE SOPHIÆ, Sev.

Leptopæcile sophiæ, Sev. Vert. i Gor. raspr. Turk. Jevot. pl. viii. figs. 8 & 9.

This handsome bird, lately discovered by M. Severtzoff in Turkestan, was found by us in the alpine regions of Kan-su. In the months of July and August they keep in small flocks in the groves of *Caragana jubata*, climbing very cleverly about the bushes, and constantly uttering their shrill

note. In Kan-su it finds its northern limit, but was observed by us also at Koko-nor and in Northern Tibet. Our specimens have not such a deep violet colour on the underparts of the body as is the case with birds from Turkestan.

93. *MOTACILLA LUZONIENSIS*, Scop.

Motacilla alba, var. *paradoxa*, Schrenck, Reisen und Forschungen im Amur-Lande, i. pl. xi. fig. 2.

Rare in Eastern Mongolia and Ala-shan, but common in Kan-su, where it sometimes ascends to the alpine regions. I cannot detect any difference between Schrenck's specimens and the birds brought home by me, which latter were killed in spring and have black and blackish-grey backs.

In Ussuri country it is extremely common, and arrives at Lake Hanka at the end of March, leaving again for the south about the beginning of October.

94. *MOTACILLA DUKHUNENSIS*, Sykes.

Motacilla dukhunensis, Gould, Birds of Asia, part xiii. pl.

We met with this species only at Koko-nor, where the first migrants arrived on the 23rd of March; and the two males secured at that time had not got the full colour on the throat, which is almost quite white. Probably the species breeds at Koko-nor, and possibly ranges as far as Kan-su. It does not appear to differ from the preceding and following ones in its habits; and these, again, are in this respect exactly similar to *M. alba*.

95. *MOTACILLA OCULARIS*, Swinh.

Motacilla alba, var. *lugens*, Schrenck, Reisen und Forschungen im Amur-Lande, i. p. 338.

Abundant throughout Mongolia, but does not occur either in Kan-su or about Koko-nor. Breeds in the neighbourhood of brooks and rivulets, and

avoids saltwater lakes. About the middle of March it arrives in S.E. Mongolia, and leaves in September; but at Halka, Ala-shan, and Ordos the migration takes place apparently in the middle of August. In Ussuri country it does not occur, and is scarcer in South-east Mongolia and Ala-shan than *M. luzoniensis*.

96. BUDYTES CINEREOCAPILLA, Sav. *Triasoguska pepelnogolovaya*.

An occasional visitant to Mongolia, and has not been observed in Kan-su. It breeds in the valley of the Yellow River, probably in company with *B. flava*, which was found there by Père David. It is extremely common in Ussuri country; and the first migrants were observed to arrive at the end of March and beginning of April at Lake Hanka, and departed again in the beginning of September.

97. BUDYTES CITREOLA, Pall. *Triasoguska jeltogolovaya*.

A very common species in S.E. Mongolia, and breeds there in the valleys near rivulets and brooks. During migration we observed it in Ordos, Halka, and Kan-su, but never met with it in Ussuri country.

98. CALOBATES MELANOPE, Pall. *Triasoguska seraya*.

As numerous as the preceding species, but breeds in similar localities in S.E. Mongolia. They first arrived at Muni-ul on the 22nd of April; a few days later at Kan-su: but here they do not appear to breed; at least we never met with any birds in summer, although some migrants were noticed towards the end of August. We did not find this bird in Ala-shan or Ordos, and very seldom in Halka; but though rare, it breeds in Ussuri, arriving about the end of April and leaving in the beginning of September.

99. ANTHUS SPINOLETTA, L. *Shevritza vodennaya*.

An uncommon bird in Mongolia, arriving about the end of March or beginning of April, and leaving again in September. In Tsaidam it winters at the unfrozen wells, and makes its appearance at Koko-nor at the end of March; I am not aware if it breeds there or not.

100. ANTHUS PRATENSIS, L. *Shevritza lugovaya*.

Anthus japonicus, Temm. & Schleg.

Is said to be found only in the eastern portion of Asia; nevertheless we procured a female specimen of it at Dalai-nor in the month of March. I cannot state whether it was a straggler or remained to breed; but I never met with this species again there.

In Ussuri country *A. japonicus* is tolerably common, arriving at Lake Hanka in the beginning of April, and breeds there on the marshes, usually in places where the grass has been burnt down in the preceding year. During the breeding-season the bird rises singing in the air above the spot where the female is sitting, stopping in its flight, and vibrating with its wings; it usually does this in the mornings and evenings. The autumnal migration takes place in October; and at that period *Anthus pratensis* is frequently seen on the coasts of the Japanese Sea.

101. ANTHUS ROSACEUS, Hodgs.

This Himalayan Pipit was observed by us at Muni-ul and Kan-su; but in Ala-shan we did not meet with it. It principally inhabits the alpine meadows, where each pair keeps a certain locality for itself. In spring its song is very pleasant, particularly at the time when the bird (like our *A. pratensis*) rises in the air, vibrating with its wings, and then again descending to the ground. It is common in Kan-su, where they make their appearance about the middle of April. It does not go northwards beyond Muni-ul.

102. *PIPASTES AGILIS*, Sykes.

Pipastes agilis, Gould, Birds of Asia, part xvii. pl.

This species is very closely allied to *P. arboreus*, and was found by us during the autumnal migration in Mongolia and Ala-shan. In Kan-su it is tolerably common, and breeds in the wooded valleys of the mountains. Its song is very pleasant.

In Ussuri country the present species (perhaps *P. arboreus*) is very scarce, occurring only now and then in the fir-woods.

103. *AGRODROMA CAMPESTRIS*, Bechst. *Shevritza polevaya*.

Is extremely common in S.E. Mongolia and the Hoang-ho valley, and is by no means scarce in Ala-shan. It breeds, in company with Larks, amidst thick bushes. The first migrants we noticed arrived in Mongolia on the 23rd of April.

104. *CORYDALLA RICHARDII*, Vieill.

It inhabits the same localities as the preceding species, and breeds in limited numbers in Kan-su, in localities where there are plenty of bushes. The first spring migrants were noticed on the 4th of May. When rising in the air its movements are similar to those of *A. pratensis*. At Urgey and about Lake Hanka it is tolerably abundant from the end of April till the beginning of September; it breeds in the steppes, avoiding the tall and thick grass of the marshes.

105. *TURDUS NAUMANNI*, Temm. *Drost Naumannia*.

Turdus naumanni, Radde, Reisen im Süden von Ost-Sibirien, ii. pl. viii.*

Strange to say, in Mongolia (at least as far as Urgey) there is not

* In this plate it is erroneously called *T. ruficollis*.

a single species of Thrush breeding, although some localities seem to be very suitable for that purpose—as, for instance, the wooded mountain-chains of Muni-ul and Ala-shan. But even during migration only very limited numbers visit Mongolia; and then they fly, avoiding the deserts, only along its eastern more fertile boundary.

T. naumanni, which is so very common in China, was met with by us once, in a flock of several specimens, at the city of Dolan-nor, in the Hoang-ho valley, and on another occasion at Koko-nor.

In Ussuri country it is very abundant during migration, but does not breed there, as we have never seen it in summer. At Lake Hanka the Thrush arrives about the middle of March, and proceeds on its migration northwards in the month of April; and in May none are to be seen. In autumn they migrate in October; and at the coasts of the Japanese sea I noticed single birds throughout November. During migration it always kept in small flocks (ten to thirty individuals).

106. *TURDUS FUSCATUS*, Pall. *Drost chernosoboy*.

We only once met with a flock of *Turdus fuscatus* in the Shura-had mountains of S.E. Mongolia, during migration. At Lake Hanka they migrate during April and the beginning of May, usually in company with the preceding species, and, like them, do not breed there, but go further north for that purpose.

107. *TURDUS AURITUS*, J. Verr.

Turdus auritus, J. Verr. Nouv. Arch. du Muséum, 1873, t. ix. pl. v.

Père David some time since discovered *Turdus auritus* in China; it is closely allied to our *T. musicus*. We met with it only in Kan-su, which appears to be its northern boundary. Here it inhabits the wooded parts of

the mountains, and is tolerably common. Its song in spring is very pleasant, and exactly like that of our Song-Thrush. We found two nests in the middle of May: one was constructed on the broken stump of a tree, and the other on the branch of a willow; both were about seven feet from the ground. In the former there were four, and in the latter two eggs (an incomplete set). These are quite different from those of *T. musicus*, being rounder, and marked on a dull reddish-white or whitish-grey ground with irregular brown and pale reddish-brown spots and streaks. The larger diameter measures 1".02–1".08, the smaller 0".76–0".84!

The first fledged young we observed on the 30th of June.

Measurements:—

	Length. in.	Width. in.	Wing. in.	Tail. in.	Culmen. in.	Tarsus. in.
♂ . .	9.5	14.5	4.74	3.86	0.67	1.4
♀ . .	10	13.7	4.65	3.93	0.7	1.4

108. *TURDUS RUFICOLLIS*, Pall. *Drost crasnosoboy*.

With the exception of Halka and Northern Tibet, this bird was observed by us wherever we went during its migration, and appears to be the most numerous migrant of all the Thrushes. At Tsaidam we observed the first birds on the 14th of February; but in Kan-su and Muni-ul the principal migration took place in the middle of April. In autumn it was rather common in the Ala-shan mountains; and at the same time we observed them in Kan-su, but not so numerous as in spring; and on the 5th of November we saw the last few specimens south of Koko-nor.

I have in my collection about ten specimens of *T. ruficollis*. They all differ from *T. naumanni* by their grey flanks and the sharply marked red colour of the throat and crop, which (according to age) varies from light brick-red to chocolate-colour.

We have not noticed this bird in Ussuri country.

109. *TURDUS PALLENS*, Pall.

Turdus pallens, Temm. & Schleg. Faun. Japon. pl. xxvii.

Late in spring we met with some migrating birds in S.E. Mongolia, Ordos, and Ala-shan : in 1871 we observed them in S.E. Mongolia on the 9th of May ; in 1872, at Ala-shan, on the 20th of May. In autumn we noticed them in the Hoang-ho valley toward the end of August, and at Ala-shan during the month of September. In spring, as well as in autumn, these birds were migrating only in small flocks of from three to ten specimens ; and by reason of the scarcity of woods, they kept in the steppes and plains covered with "sacsaulnics."

110. *MERULA GOULDII*, J. Verr. *Drost Goulda*.

Merula gouldii, J. Verr. Nouv. Arch. du Muséum, t. ix. 1873, pl. v.

We met this beautiful Thrush (lately discovered by Père David, in Si-chuaney) in the Kan-su mountains, where it inhabits the wooded localities. Here it chooses the mountain-slopes covered with larch trees for its habitat and nidification. It is very cautious in its habits, although it never gets disturbed by man. In spring its song is beautiful, particularly early in the morning and at sunset, from the branches of trees. The young begin to fly about the end of June, and keep in families in those woods where plenty of berries are found, and usually in the vicinity of mountain-creeks.

We did not notice the time of their autumnal migration from Kan-su, where they are rather common, and which, I find, is their northern limit.

Measurements :—

	Length.	Width.	Wing.	Tail.	Culmen.	Tarsus.
	in.	in.	in.	in.	in.	in.
♂ . . .	11·5	10·7	5·7	4·8	0·87	1·35
♀ . . .	17·3	16·3	5·5	4·5	0·85	1·32



MERULA KESSLERI, PRZEW. ♂

111. *MERULA KESSLERI*, n. sp. *Drost Kesslera*. (Plate LIV. II.)

Capite toto, collo, alis caudaque nigris, dorso et pectore isabellinis; abdomine, uropygio scapularibusque ferrugineis; subalaribus fuscis; subcaudalibus nigricantibus ferrugineo variis; rostro flavo, pedibus nigricantibus.

Fem. capite et collo fuscis; pectore et dorso pallidioribus; abdomine sordide rufescente; alis caudaque fuscis.

Measurements:—

	Length.		Width.		Wing.	Tail.	Culmen.
	in.	in.	in.	in.	in.	in.	in.
♂ . . .	11·2	12	17	18	6·25	5·25	0·74
♀ . . .	11·5		16		5·85	4·8	0·8

	Gape.	Tarsus.	Middle toe.	Hind toe.
	in.	in.	in.	in.
♂ . . .	1·13	1·4	0·9	0·5
♀ . . .	1·16	1·44	0·95	0·5

Quills—4th largest, 3rd=5th somewhat shorter, 2nd=6th, 1st shorter than the large wing-coverts; 3rd, 4th, and 5th a little cut out at the end of the outer web. In the rounded tail of twelve feathers the outer are 0"·5 shorter than the middle ones. Culmen of male yellow, that of the female blackish, and yellow only at the base; legs dark horn-colour; iris dark brown.

Male.—Head, neck, crop, wings, and tail pale black; back and breast greyish; shoulders, stomach, rump, and flanks rust-colour, getting deeper underneath. Large and medium upper wing-coverts are of a similar colour to the quills; small upper wing-coverts greyish brown; under wing-coverts brown or blackish. Feathers under the shoulders light greyish brown, with blackish points. Upper tail-coverts grey or blackish, with wide light-brown edges; under tail-coverts black, with rust-coloured edges.

Female.—General plumage similar to that of the male, only all colours are paler. Head, neck, and crop brown; throat somewhat paler, and marked with small black streaks. Breast and back greyish pale brown; rump of

same colour, only shaded with red. Stomach and flanks dirty light brown. Quills and tail-feathers blackish, the former marked with very fine hardly perceivable pale edges. Large and middle upper wing-coverts same colour as the quills : small upper wing-coverts brownish. Under wing-coverts and feathers under the shoulders pale brown, with indistinctly marked lighter edges ; under tail-coverts blackish, with light-brown edges.

The species, named by me after our well-known ichthyologist, Professor Kessler, was discovered by us in the Kan-su mountains, where it inhabits the wooded and alpine bush-covered districts. It principally keeps, however, to the thick groves of juniper-bushes, which grow at a height of 1200 feet above the sea-level.

In its habits *M. kessleri* very much resembles *M. gouldii*, and sings equally well, which it usually does from the top of some tree. The call-note, however, which it utters in rising or when flying, consists of rough monosyllables something like "*chock, chock, chock!*"

The first migrants were observed on the 13th of April. They arrived in pairs or small flocks of from three to five, and were at that time usually seen in the thickets on the shores of mountain-creeks. In the middle of May the nests were ready ; and, judging from the loss of feathers on the stomach, the male also takes his turn in hatching. About the end of July we noticed the first fully fledged young, which during the months of July and August kept in families. These flocks, and also those consisting of old birds in spring, were usually to be seen feeding in the mountain-meadows.

The Kan-su mountains form the northern limit of these birds.

112. OREOCYNCLA VARIA, Pall.

We found a dead specimen in the northern Ala-shan desert, close to a well, where only two willows were growing. Most likely it had perished from want of food. Another time we met with it in Ussuri country, in the end of April, at Lake Hanka, and succeeded in shooting it.

113. *MONTICOLA SAXATILIS*, L. *Drost kamennoy*.

Near the town of Kalgan we found this species for the first time, inhabiting the adjacent mountains and rocks. At the end of April the males were already singing, usually from some precipice or rock, taking to wing at very short intervals, and then alighting again on the same spot. This performance takes place usually in the morning. I am not aware if this is done by European birds of this species, as I never had a chance to observe their habits myself. It is very abundant in the dry treeless mountains of S.E. Mongolia, but avoids the wooded parts; and this is the reason why it inhabits only certain localities of Muni-ul. A nest was taken at Suma-had on the 31st of May, constructed of dry grass, and placed in a crevice of a rock about six feet from the ground. It contained five partly incubated bluish-green eggs, on which the female was sitting. Large diameter 0".95-1", small diameter 0".76-0".8. It breeds also in the Hara-narin-ul and Ala-shan mountains, but does not occur in Kan-su.

114. *HYDROBATA CASHMIRIENSIS*, Gould. *Oliapka cashmerskaya*.

Hydrobata cashmiriensis, Gould, Birds of Asia, part xii. pl.

On the shores of the clear mountain-brooks of Kan-su it is found from the lowest plains up to the alpine regions, *i. e.* to an absolute height of over 11,000 feet. In their habits the Kan-su birds do not differ from their European congeners. Each pair has its own district, and does not allow any other bird of this species to entrench on it, but lives very peacefully with its neighbours, especially so with *Chæmarrhornis leucocephala*. The whole day it is busily engaged in diving in search of food, flying from stone to stone, or singing its simple but not unpleasant song, which (like our European bird) it does not forget in winter; and in December and February we obtained specimens in the Burhan-Bulda mountains of Northern Tibet. In Kan-su they are most probably resident, keeping to the ice-free mountain-brooks in the winter. In spring, about the 9th of May, all the

females were sitting on eggs, and the males could only be seen singly. The young, which are easily distinguished from the old birds by their white underparts, leave the nest at the end of July or beginning of August; at least, from that time onwards we often met with them. Its range does not extend further north than Kan-su.

115. HYDROBATA SORDIDA, Gould. *Oliapka griasnaya*.

We observed *H. sordida* in winter in Northern Tibet, about the Burhan-Bulda mountains. They kept company with the preceding species at the unfrozen places of the river Nomohun-gol and its tributaries. I myself did not see it at Kan-su; but my companion observed a pair at the river Tetung-gol.

116. PTERORHINUS DAVIDI, Swinh.

Pterorhinus davidi, Gould, Birds of Asia, part xxiii. pl.
Hey-la-po, Chinese.

This species, lately discovered by Père David, was obtained by us in S.E. Mongolia, Ordos, Ala-shan, and Kan-su. It inhabits the thick bushes growing on the mountains, and does not avoid plains, and is tolerably common in the tamarisk-groves of the Hoang-ho valley. In richly wooded localities (like Muni-ul, Ala-shan, and Kan-su) it is sometimes found on high trees, but always prefers the low bushes. It is a very lively and restless bird, always moving about in the bushes, and flying only now and then short distances and from one bush to another. Its flight is similar to that of *Rhopophilus pekinensis*: the bird moves with a continuous jerky motion, the long tail partially erected. It runs very fast, and often goes from one bush to another without leaving the ground. Its song is really charming, being a loud clear whistle, and can be heard throughout the day, but usually chiefly in the morning and evening. The nest is very carelessly constructed

of dry grass, roots, and small twigs, without any lining whatever, and placed in a thick bush not far from the ground. In the three nests found by us there were three young birds or three eggs. The latter are of an elongated oval shape and of a bluish-green colour; long diameter $0''\cdot99-1''\cdot1$, short diameter $0''\cdot73-0''\cdot75$. It commences to breed very early; for in two nests, taken in Kan-su on the 16th and 19th of May, we found young ones. This is the more remarkable, as the greater number of Kan-su birds breed late on account of the frequent frosts during the spring. The young keep for some time with the old birds.

In the vicinity of the town of Dolon-nor and about the lake of the same name *P. davidi* does not occur; so that the S.E. portion of Mongolia probably forms its northern boundary.

117. *TROCHALOPTERON ELLIOTI*, J. Verr.

In the Kan-su mountains only did we find this species; in its habits, mode of life, and voice it exactly resembles the preceding one, inhabiting similar localities. It usually keeps in small flocks, and is always climbing about in the thickest bushes; so that from a distance it might easily be mistaken for a squirrel. Its song is similar to that of the preceding species, only somewhat longer; and when frightened it utters a note something like "*priss, priss, priss.*" In summer it principally feeds on berries, and is particularly fond of woodbine, which is very abundant in Kan-su; it sometimes eats so many of these berries, that when we shot specimens the blue juice of them would exude from the crop and spoil the whole skin.

The nest is situated in the branches of a bush, usually the berberry, about six or seven feet from the ground. It is a large structure (three quarters of a foot in diameter) of bass and thin bark of the birch; the interior nest-cup, measuring three inches in diameter, is lined with fine roots of grass. The eggs are four in number and of the same bluish-green colour as the eggs of the preceding species, but are covered at the large end with

blackish-brown spots, patches, and irregular lines. Eggs taken by me in the middle of May were incubated. Both sexes sit so closely, that on one occasion I nearly caught the bird.

T. ellioti is probably a resident in Kan-su and the northern portion of Si-chuaney, where Père David discovered it. The Kan-su mountains form the northern boundary of its occurrence.

Measurements :—

	Length.	Width.	Wing.	Tail.	Tarsus.	Culmen.
	in.	in.	in.	in.	in.	in.
♂ . .	10·7	11	4·16	5·7	1·5	0·68
♀ . .	10·2	11	3·85	5·3	1·48	0·68

[TO BE CONTINUED.]



Art. Leemann, 1864

SOMATERRIA LAYSANORUM (Laysan Duck) N. Y. 1864, p. 100

John V. Leemann, 1864

SOMATERIA LABRADORIA (*J. F. Gmelin*).

(The Pied Duck.)

BY MR. G. D. ROWLEY.

(Plate LV.)

THIS Eider either is, or soon will be, extinct, and another must be added to the long list of forms which we once knew, but which have succumbed to the waves of time or the hand of unthinking man!

Darwin says ('Origin of Species,' chap. x. p. 338, edit. 1861):—"New species have appeared very slowly, one after another, both on the land and in the waters. Lyell has shown that it is hardly possible to resist the evidence on this head in the case of the several tertiary stages," &c.

Without expressing any opinion upon this, all must admit that old species are going rather rapidly, and as regards them the world is, like its coal-cellars, wearing out. Not to speak of countless fine forms which fossil ornithology opens out to our astonished gaze—the grand Swan of the Zebbug cavern, Malta (*Cygnus falconeri*, Trans. Zool. Soc. vi. pl. xxx.), the gigantic Goose of New Zealand (*Cnemiornis calcitrans*, Owen), and other aquatic birds belonging to the ornis of past ages, the terrestrial giants of Madagascar, New Zealand, or Southern Russia (*Struthiolithus chersonensis*, Ibis, 1874, p. 7), nor even that wonderful raptor *Harpagornis moorei*—there is sufficient, I affirm, in the losses of historic days to

make a true ornithologist shed tears of vexation; for he sees a celerity of evil which he feels, and most acutely, that he is powerless to prevent.

But let us grant that one or two Pied Ducks still remain. How long will they do so? How long? only till the next species-murderer arrives to snuff them out. There are plenty such, who, with perfect equanimity, would breakfast on *Notornis*, dine on a Do Do, and sup on *Nestor productus*.

There is no need, however, to go through the funereal list of modern extinction. The 'American Naturalist' appears to have first drawn attention to the increasing scarcity of the Duck before us; and the following excerpts are there to be found.

'American Naturalist,' vol. ii. p. 325, August 1868, a paper on "Shore collecting about New York," by "A. R. Y." :—

"ANAS LABRADORA.

"It may not be generally known, but I have been assured by ornithologists that Long Island has produced more species of birds than any other place in the United States of its size. Entomologists and botanists make the same statement in regard to their respective specialities. The shores from here to the extreme eastern end of the island are mostly protected from the ocean by sand-bars and islands, leaving large bays and salt-meadows, which are the favourite haunts of thousands of aquatic and rapacious birds. Many birds have been shot here this winter that are generally considered as very rare, such as the Labrador Duck, the Harlequin Duck, the Goshawk, and a few others not often seen."

Op. cit. vol. iii. September 1869 :—

"*Labrador Duck.*—In the August (1868) 'Naturalist,' A. R. Y. mentions that the Pied or Labrador Duck was shot on Long Island last winter. I would be much obliged to A. R. Y. if he would let me know if the specimens shot were full-plumaged males, and who has them? This is a very interesting bird to the naturalist, from the fact of its being so rare; and I had almost

begun to think it had left us, as I had not heard of a full-plumaged male being captured for ten years. I have been shown two which were mistaken for the young; but one was a young albino Scoter, and the other I did not know. Not many years ago it was a common bird all along our coast, from Delaware to Labrador; and in the New-York market there would at times be dozens of them, and then for a few years not one. It would be very interesting to know where they have gone. Though so much has been written of the distribution, summer- and winter-homes of birds, within a few years, their breeding-habits, line of travel north and south, and from the numerous collectors who have gone to Labrador, the fur-countries, and across the continent, yet not one word is said about the Labrador Duck—a common bird a few years ago. So good a flyer and diver cannot be extinct, like the clumsy *Alca impennis* (Great Auk); and any collector who may take a full-plumaged bird, or know where they have gone, by letting it be known in the 'Naturalist' would interest many of its readers.—GEO. A. BOARDMAN, *Milltown, Me.*"

Pennant, in his 'Arctic Zoology,' vol. ii. (published in 1792), has two illustrations and a description of the Pied Duck (or, rather, the same in two places), which appear to be the first known representations. At p. 282 he gives the account, and adds:—"Sent from Connecticut to Mrs. Blackburn. Possibly the great flocks of pretty Pied Ducks, which whistled as they flew or as they fed, seen by Mr. Lawson ('History of Carolina,' p. 148) in the western branch of Cape-Fear inlet, were of this kind."

We find the following, on "*Fuligula labradora*," in 'Birds of Long Island,' by J. P. Giraud, jun., 1844, p. 327:—

"This species is called by our gunners 'Skunk Duck,' so named from the similarity of its markings to that animal. With us it is rather rare, chiefly inhabiting the western side of the continent. In New Jersey it is called 'Sand-shoal Duck.' It subsists on small shell- and other fish, which

it procures by diving. Its flesh is not considered a delicacy. A few are seen in our market every season."

The above statement as to the bird frequenting the *western* side of the continent is perhaps taken from Nuttall, and is a mistake.

In the 9th edition of the 'Encyclopædia Britannica,' in Prof. Newton's portion of the article on "Birds," we have as follows :—

"Far less commonly known, but apparently quite as certain, is the doom of a large Duck which even fifty years ago was commonly found in summer about the mouth of the St. Lawrence and the coast of Labrador, migrating in winter to the shores of Nova Scotia, New Brunswick, New England, and perhaps further southward. For many years past, according to the best-informed American ornithologists, not a single example has been met with in any of the markets of the United States, where formerly it was not at all uncommon at the proper season; and the last known to the writer to have lived was killed by Col. Wedderburn in Halifax Harbour, in the autumn of 1852. (It is needless to observe that no one at that time had any notion of its approaching extinction.) This bird, the *Anas labradora* of the older ornithologists, was nearly allied to the Eiders (*Somateria*), and, like them, used to breed on rocky islets, where it was safe from the depredations of foxes and other carnivorous quadrupeds. This safety was, however, unavailing when man began yearly to visit its breeding-haunts and, not content with plundering its nests, mercilessly to shoot the birds. Most of such islets are of course easily ransacked and depopulated. Having no asylum to turn to—for the shores of the mainland were infested by the four-footed enemies just mentioned, and (unlike some of its congeners) it had not a high northern range—its fate is easily understood. No estimate has yet been made of the number of specimens existing in museums; but it is believed to be not very great."

Latham says (Gen. Hist. of Birds, vol. x. p. 318) :—

"82. *Pied Duck*.—Inhabits the coast of Labrador, from whence a pair

in possession of Sir Joseph Banks were brought. That described in the 'Arctic Zoology' came from Connecticut. Mr. Pennant thinks them the same with the pretty Pied Ducks, which whistled as they flew or fed, met with by Lawson in the west branch of Cape-Fear inlet. According to the American ornithologists, this bird is subject, when young, to a progressive change of colour. It frequents the sand-bars, its principal food being shell-fish : hence called Sand-shoal Duck."

Audubon, in the 8vo edition of 'The Birds of America,' has a plate of the male and female—vol. vi. (1843) p. 329, where he remarks :—

"Although no birds of this species occurred to me when I was in Labrador, my son, John Woodhouse, and the young friends who accompanied him, on the 28th of July 1833, to Blanc Sablon, found, placed on the top of the low tangled fir bushes, several deserted nests which, from the report of the English clerk of the fishing establishment there, we learned to belong to the Pied Duck. They had much the appearance of those of the Eider Duck, being very large, formed externally of fir twigs, internally of dried grass, and lined with down. It would thus seem that the Pied Duck breeds earlier than most of its tribe.

"It is surprising that this species is not mentioned by Dr. Richardson in the 'Fauna Boreali-Americana,' as it is a very hardy bird and is met with along the coasts of Nova Scotia, Maine, and Massachusetts during the most severe cold of winter. My friend Professor MacCulloch, of Pictou, has procured several in his immediate neighbourhood ; and the Hon. Daniel Webster, of Boston, sent me a fine pair killed by himself on the Vineyard Islands, on the coast of Massachusetts, from which I made the drawing for the plate before you. The female has not, I believe, been hitherto figured ; yet the one represented was not an old bird.

"The range of this species along our shores does not extend further southward than Chesapeake Bay, where I have seen some, near the influx of the St. James river. I have also met with several in the Baltimore market.

“Along the coast of New Jersey and Long Island it occurs, in greater or less number, every year. It also at times enters the Delaware river, and ascends that stream at least as far as Philadelphia. A birdstuffer whom I knew at Camden had many fine specimens, all of which he had procured by baiting fish-hooks with the common mussel on a ‘trot-line’ sunk a few feet beneath the surface, but on which he never found one alive, on account of the manner in which these Ducks dive and flounder when securely hooked. All the specimens which I saw with this person, male and female, were in perfect plumage; and I have not enjoyed opportunities of seeing the changes which this species undergoes.

“The Pied Duck seems to be a truly marine bird, seldom entering rivers unless urged by stress of weather. It procures its food by diving amidst the rolling surf over sand or mud-bars, although at times it comes along the shore and searches in the manner of the Spoonbill Duck. Its usual fare consists of small shell-fish, fry, and various kinds of seaweeds, along with which it swallows much sand and gravel. Its flight is swift; and its wings emit a whistling sound. It is usually seen in flocks of from seven to ten, probably the members of one family.”

Wilson, in the ‘American Ornithology’ (vol. iii. pl. lxix.), figures the male, and says (p. 114):—“This is rather a scarce species on our coasts, and is never met with on freshwater lakes or rivers. It is called by some gunners the Sand-shoal Duck, from its habit of frequenting sand-bars. Its principal food appears to be shell-fish, which it procures by diving. The flesh is dry, and partakes considerably of the nature of its food.”

Nevertheless an English voyager to Labrador in 1773 says, in October of that year:—“One of my people killed a pair of pied birds which afforded us an excellent supper.” I know the passage relates to the Duck in question because the writer previously speaks of one Pied Duck, killed October 1770. It appears to me, however, that it was never a very numerous species; and though a vast number of every kind of game were shot, yet this bird only

occurs certainly twice ; and perhaps some persons might doubt the identity in the last case, though I do not.

Wilson continues :—" It is only seen here during winter ; most commonly, early in the month of March a few are observed in our market. Of their principal manners, place or mode of breeding, nothing more is known. Having myself had frequent opportunities of examining both sexes of these birds, I find that, like most others, they are subject, when young, to a progressive change of colour. The full-plumaged male is as follows :—length 20 inches, extent 29 inches ; the base of the bill and edges of both mandibles for two thirds of their length are of a pale orange-colour, the rest black ; towards the extremity it widens a little in the manner of the Shoveller's, the sides there having the singularity of being only a soft, loose, pendulous skin ; irides dark hazel ; head and half of the neck white, marked along the crown to the hind head with a stripe of black ; the plumage of the cheeks is of a peculiar bristly nature at the points ; and round the neck passes a collar of black which spreads over the back, rump, and tail-coverts ; below this collar the upper part of the breast is white, extending itself over the whole scapulars, wing-coverts, and secondaries ; the primaries, lower part of the breast, whole belly, and vent are black ; tail pointed, and of a blackish hoary colour ; the fore part of the legs and ridges of the toes pale whitish ash ; hind part the same, bespattered with blackish ; webs black ; the edges of both mandibles are largely pectinated. In young birds the whole of the white plumage is generally strongly tinged with a yellowish cream-colour ; in old males these parts are pure white, with the exception sometimes of the bristly-pointed plumage of the cheeks, which retains its cream-tint the longest and, with the skinny part of the bill, form two strong peculiarities of this species.

" The female measures 19 inches in length and 27 inches in extent ; bill exactly as in the male ; sides of the front white ; head, chin, and neck ashy grey ; upper parts of the back and wings brownish slate ; secondaries only white ; tertials hoary ; the white secondaries form a spot on the wing, bounded

by the black primaries and four hoary tertials edged with black ; whole lower parts a dull ash, skirted with brownish white or clay-colour ; legs and feet as in the male ; the bill in both is marked from the nostrils backwards by a singular heart-shaped outline.

“The windpipe of the male measures 10 inches in length, and has four enlargements, viz.:—one immediately below the mouth, another at the interval of an inch ; it then bends largely down to the breastbone, to which it adheres by two strong muscles, and has at that place a third expansion ; it then becomes flattened, and before it separates into the wings has a fourth enlargement much greater than any of the former, which is bony and round, puffing out from the left side. The intestines measured 6 feet ; the stomach contained small clams and some glutinous matter ; the liver was remarkably large.”

In a note is added :—“The Prince of Musignano places this bird among the *Fuligulæ* (*Fuligula labradora*, Bonap. Synop. p. 391).”

Mr. Elliott Coues, in his notes on the ornithology of Labrador, made in 1860 (Proc. Acad. Nat. Sci. Philad. 1861, p. 239), says :—“I did not succeed in procuring or even meeting with this rare and very remarkable Duck. I was informed that though it was rarely seen in the summer, it is not an uncommon bird in Labrador during the fall. It is known by the peculiar appellation of “fool-bird”—a name given it on account of its remarkably unsuspicious nature, which renders it easy to approach. The name, however, can scarcely be a general one. Further than this I learned nothing respecting it.”

The following appears at p. 170 of the ‘Journal of the Academy of Natural Sciences of Philadelphia,’ vol. viii. :—

“*Description of a New Species of Fuligula.* By GEORGE C. LEIB, M.D.

[Read January 7th, 1840.]

“FULIGULA GRISEA.

“This Duck was procured in the market of Philadelphia, on the 15th of

December, 1839 ; but no information concerning its history could be obtained, further than that it was shot in the neighbourhood of Great Egg Harbour, New Jersey. The stomach contained small broken shells.

“*Specific Characters*.—Speculum and throat white ; bill expanded and tumid ; teeth remarkably developed ; plumage dark grey, inclining to fuscous.

“Female uniform greyish ash.” . . .

Description of both sexes follows ; the only thing especially worth noting is, “the labyrinth [*sic*] of the male is large” (p. 171).

Between pp. 170 and 171 is inserted a slip of paper :—

“☞ Since writing the within I have discovered that this bird is the young of the *labradora* in a plumage heretofore undescribed or figured ; which circumstance is sufficient to render it interesting to the naturalist.—G. C. L.”

Thomas Nuttall says, in his ‘Manual of Ornithology’ (edit. 1834, vol. ii. p. 428) :—

“The Pied Duck, though an inhabitant of the northern parts of America, is not found in the fur-countries of Hudson’s Bay. It is probably a mere straggler on the coasts of the whole Atlantic, and chiefly inhabits the western side of the continent,” &c. &c.

The above statements of course require no refutation to any one who reads those of other writers quoted in this article. This author evidently does not know much about the species.

In his grand work on the Geographical Distribution of Animals, Mr. Alfred Russel Wallace states (vol. ii. p. 39) :—

“The only case of discontinuous distribution we can find recorded, is that of the genus of Ducks *Camptolæmus*, which has a species on the east side of North America and another in Chili and the Falkland Islands ; but these, Professor Newton assures me, do not properly belong to the same genus.”

No doubt this will be put straight in a second edition ; in a first it is impossible to have every thing perfect.

William P. Turnbull, LL.D., remarks ('Catalogue of Birds of East Pennsylvania and New Jersey,' 1869, p. 47) :—

"Labrador Duck (*Camptolæmus labradorius*; Sand-shoal Duck; Pied Duck).—Rare; a few are seen every season. Winter visitant."

In Swainson and Richardson's 'Fauna Boreali-Americana' (p. xxxvii, note), we find :—

"No. 1. List of the species which migrate northwards through Pennsylvania in spring, and may therefore be considered as retiring to the fur-countries to breed, although they do not come under our notice.

"Natatores *Anas obscura*. *A. labradora*."

Before I proceed to make such few remarks as occur to me, I must express my thanks :—

To Dr. Günther and the Trustees of the British Museum, for the permission to draw their two birds represented in the Plates, and for every kind facility granted, and opportunity afforded, to examine them ;

To Mr. Thomas J. Moore and the authorities of the Liverpool Museum, for sending their immature one to London to be drawn (it appears as the third in the illustration). Mr. Moore assisted me greatly.

To Professor Newton, for the loan of the (unique?) sternum of the Pied Duck, with others (of which I have given representations) which form part of the large collection made by Messrs. Alfred and Edward Newton, now in the Museum of the University of Cambridge. (This valuable bone was sent to the above gentlemen by Col. Wedderburn as that of the male bird killed by him in the harbour of Halifax, Nova Scotia.) I have also to thank Mr.

Newton for the expression of his opinion on various points, concerning which presently.

To Mr. T. C. Eyton, for his prompt permission to copy the heads and feet of *Kamptorhynchus labradorius* and *S. mollissima* from his 'Monograph on the Anatidæ.'

To Dr. E. Oustalet, Paris, and various persons on the Continent who have kindly troubled themselves on my behalf.

To Mr. Dresser, Mr. Salvin, and Mr. D. G. Elliot I am under obligation.

To Prof. Baird and my other American friends, whose names appear to their letters, I return my warmest thanks for quick replies, sent with that courtesy which we always experience from our kindred ornithologists in America.

I have spoken of this Duck as *Somateria labradoria* (J. F. Gmelin). In Gray's 'Genera' (vol. ii.) we find:—" *Camptolaimus*, G. R. Gray, proposed in 1841, in the place of *Kamptorhynchus* of Mr. Eyton ('Monograph of the Anatidæ,' p. 57), who published that name in 1838, but which had been previously used in Zoology. *C. labradora*, Gmel."*

The derivation appears to be *καμπτός*, bent, and *λαιμός*, neck or gullet. This would become *læmus*, not *laimus*; and the word is *Camptolæmus*.

After very careful consideration, and not without doubt, I determined to follow Prof. Newton (*cf.* *Encycl. Brit.* 9th edit. vol. iii. p. 375, art. "Birds") and place the Pied Duck among the Eiders. I do not, however, consider this quite satisfactory; and it is probable that, until fossil ornithology is better known, things will never be properly sorted.

The first reason why I dislike the arrangement is, on account of the divergence of the beak in *S. labradoria* from that which appears in *S. mollissima*, which I take as the type. This variation is seen in the lithograph. To remove a species from a genus on account of such a difference would, however, perhaps be rash.

* *Anas labradoria*, Gmelin, *Syst. Nat.* i. 1788, p. 537.

Mr. Wallace speaks (Ibis, 1874, p. 409) of those who have freed themselves "from the trammels of the old rostral system." Mr. Sharpe, it is true, has differentiated the English Eider from the American form of the same bird, and given the latter the name *S. dresseri* (cf. Nature, 1871, p. 51), stating that the chief divergence "lies in the bill," which he considers so strong that he appends woodcuts; he, however, adds one or two facts of minor importance in addition. Other beaks, however, in the same genus vary from *S. mollissima*, as *S. spectabilis* and *S. fischeri*.

The female plumage of *S. labradoria* differs somewhat from that of the normal Eiders; and Audubon, Wilson, and Bonaparte did not place the species with *Somateria*; but the first and last made a *Fuligula* of it, just as they did of *S. mollissima*, and the second called it *Anas labradora*.

There is one point of resemblance, however, which (though a superficial one), in the absence of the bird in the flesh, decided me. It is the presence in the male Pied Duck of those stiff and glistening feathers in the head, which (so far as I have been able to discover), among Ducks, belong to the Eiders alone.

Nevertheless too much importance must not be given to such a character; for Dr. Otto Finsch remarks (P. Z. S. 1875, p. 557), on the genus of Fruit-Pigeons *Chrysæna*:—"The small feathers, with exception of those of the head in *Chrysæna luteovirens*, are remarkable for their narrowed cylindrical form. But this structure is not to be found in *Chrysæna victor* at all; so that if one were to take the structure of the feathers solely as a distinguishing generic character of *Chrysæna*, *C. victor* could not be placed in the genus."

These feathers in *S. labradoria*, resembling bristles, are very peculiar to the touch. They are stronger in *S. fischeri* than in *S. mollissima*; in *S. spectabilis* they appear less. They exist in Steller's Duck. Macgillivray (vol. v. p. 149) thus describes those on the head of *S. mollissima*:—"Short, soft, blended, rounded, with the terminal filaments disunited; the occipital

and upper posterior and lateral cervical are rather long, stiff, linear, and terminated by a pencil of disunited stiffish filaments, with silky lustre." By means of these you may tell an Eider Duck in the dark, by the touch.

Perhaps the Pied Duck had better remain among the Eiders, in which group it appears to be the least beautiful member.

I come now to the subject of the down—rather an important feature in an Eider Duck.

Wilson says (vol. iii. p. 151):—"The down from dead birds is little esteemed, having lost its elasticity." This refers to *S. mollissima*.

Macgillivray remarks (vol. v. p. 154):—"All the Anatinæ that I have examined, as well as all the Anserinæ (of which, however, the down, although finer, is less elastic), are pretty much alike; and the Eider-down has obtained its celebrity simply because it is the only bird easily procured in quantity. It has been alleged that 'as plucked from the living bird, it is much more elastic than when taken from the body after death;' but on comparing some down plucked from a Davis-Straits specimen now before me, with some collected in nests in the Outer Hebrides, I find that the down from the dead bird is rather superior in elasticity, probably because it has not been in any degree crumpled or entangled, as the other has slightly been."

The following comparison of the down on *S. mollissima* and *S. labradoria* has been kindly made for me by Mr. T. J. Moore, from the examples in the Liverpool Museum:—

"*Camptolæmus* (Labrador or Pied Duck).

"No. 920 (male).—Down beneath the black feathers of the belly dusky or brownish, becoming

"*Somateria mollissima* (Eider).

"No. 919 (male).—Down beneath the black feathers of the underparts dusky brown, whiter on

whiter as it approaches the breast, where the down itself becomes white with the feathers.

“*No. 920 a* (female).—Down dusky brown throughout.

“*No. 920 b* (immature).—Nearly the same, only showing whiter under the whitish feathers of the breast, as in the male.” (Plate LV.)

the flanks, quite white under the white feathers of the breast.

“*No. 919 a* (female).—Down dusky brown throughout.

“*Somateria spectabilis* (King Duck).

“*No. 918* (male).—The down is decidedly *paler* than in the male Eider.

“*No. 918 c* (female).—The down is decidedly *darker* than in either the female Eider or male Pied Duck.”

The following is the description of the young male bird from Liverpool figured in the Plate:—

Head, back, rump, and tail brownish grey. Upper tail-coverts darker. Wing—primaries blackish; secondaries, with the exception of the first three, white; tertiaries white; the remaining wing-coverts, like the scapularies, greyish, being somewhat similar to the back- and rump-feathers, though a little more grey. Throat white, with a brownish ring indicating the black ring in the old male bird. Breast white, gradually becoming light brownish towards the vent; the latter, like the rest of the underparts, dark sandy or greyish sand-colour; the soft parts *as in the adult female*.

Writers are usually silent on what they cannot tell. Departing from this custom, I lament my ignorance of the eggs and nest of this species, of the nestling-plumage in both sexes, also of a full, proper, and exact description of the stages of plumage in a bird which, as I conjecture, does not attain

its adult dress certainly for three years, perhaps four. Wilson, who is the best authority regarding it, does, indeed, allude to the subject, but not in the perfect way we could wish. He, however, describes the trachea; and I urge on American ornithologists the importance of securing a scientific examination of the body of any specimen which the future may afford, with note of the colour of the soft parts, preservation of the bones, &c. They, however, are quite alive to the subject.

Extracts from Letters.

The List of Specimens, by no means exhaustive, represents some hard work of mine and much kind response from my American and other friends. I think the following portions of correspondence may not be without interest.

Professor Baird writes :—

“International Exhibition, Washington, April 25th, 1876.

“I was informed by the late Capt. Hall that the bird was not uncommon on the northern part of Hudson’s Straits.”

Mr. James Orton (Vassar College, Poughkeepsie, N. Y., April 20th, 1876) says :—

“The late J. P. Giraud, Esq. (a friend of Audubon, and author of the ‘Birds of Long Island’), informed me that formerly it was met with every winter on the coast of Long Island.”

Mr. D. G. Elliot’s letter (dated “5 Rue de Tilsitt, Paris, 31st May, 1876”) runs thus :—

“During twenty years I only once was able to obtain a full-plumaged male. It was killed about ten years ago, on the south shore of Long Island—I believe, in the Great South Bay; and I had it in the flesh. It went to the

American Museum of Natural History. This specimen is the only adult male, I have every reason to believe, that has been obtained in America during the past twenty years, and is the last one, I think, that has been seen alive. Previously to that time (ten years ago), occasionally immature specimens were brought into the New-York markets; but I have not heard of any since that time. Twenty or thirty years ago, as I have been informed by Mr. J. G. Bell of New York, it was one of the commonest Ducks for sale in New York; but suddenly it disappeared, and, with the exception of an occasional straggler, was never seen again. The cause of its disappearance is one of those mysterious facts which it is beyond the power of any naturalist to explain; for, unlike the Great Auk, the Pied Duck was very strong upon the wing and perfectly able to take care of itself. Besides the male already mentioned, my collection contained another adult male and adult female, and, I think, two young males, obtained near New York, all of which are in the New-York Museum."

Mr. George N. Lawrence, of New York (April 10th, 1876), informs me as follows:—

"Mr. J. Akhurst, of Brooklyn, told me that he received a fine adult male from the seashore of Long Island in 1868, which he sold, and thinks it went to Europe. Mr. J. Wallace, of New York, obtained a female or young male in the fall of 1874, and in the previous five years got in the market at least four or five others, but no adult male. These were all from Long Island. Mr. J. G. Bell, our oldest and most experienced taxidermist, has had numerous specimens. Mr. P. Brasher, a friend of mine, had an adult male which he obtained in the market in November 1841, and also a female shot by himself at Egg Harbour, New Jersey, in October 1842. He sold his collection to some eastern college, and thinks it was destroyed by fire. Mr. Bell mentioned that he saw a lot of about twenty in the Fulton market, all killed on one expedition by Isaac Loper, a professional Long-Island gunner. This was about 1840–42.

“Some thirty years ago I remember seeing a bunch of, say, six adult males hanging in the market, day after day, without finding a purchaser. Since then only an occasional one has been seen; but, as you will notice, some have been quite recently obtained, which somewhat militates against the supposition of their being extinct.”

With reference to “hanging in the market,” and as a dish for the table, we have the practical opinion of a voyager to Labrador, who partook of two of these birds on October 6th, 1773, and who says “they afforded us an excellent supper.”

But taste in such matters may vary; for Col. Prjevalsky tells us (‘Mongolia,’ vol. i. p. 56) that “a Mongol, born and bred amid frightful squalor, who could relish carrion, shuddered when he saw us eat Duck *à l’européenne*; and one of our guides nearly turned sick.” For our part we wish that all very rare species could be rendered distasteful.

List of Specimens.

EUROPE.

	Sex.	Number.
The British Museum	♂, ♀	2
♂ adult, presented to the Museum by the Hudson’s Bay Company about the year 1835.		
♀ adult, purchased from Verreaux in 1863, with a miscellaneous lot of North-American birds.		
Liverpool Museum	♂, ♀, ♂ juv.	3
♂ adult, purchased from Mr. Gould, January 16th, 1833.		
♀ adult, presented by T. C. Eyton, Esq. (no date); purchased from Mr. Gould, January 16th, 1833.		
♂. Though regarded by Lord Derby as a female, this would appear to be a young male; “for the throat and breast are assuming the white of the male.”		

*List of Specimens (continued).*EUROPE (*continued*).

	Sex.	Number.
Strickland Collection, Cambridge	♂	1
Obtained by Mr. H. E. Strickland, from his relation Mr. Arthur Strickland, in 1850; in full plumage and good condition. Nothing more is known about it.		
Col. Wedderburn's Collection	♂	1
Shot by him in 1852, in Halifax Harbour. Sternum in Cambridge Museum.		
Leyden Museum	♂, ♀	2
Were obtained in 1863. The name put to them is, Prince of Neuwied.		
Berlin Museum	?	1
Paris Muséum d'Histoire Naturelle	♂	1
Presented in 1810 by M. Hyde; feet somewhat decayed.		

AMERICA.

PROFESSOR BAIRD'S LIST.

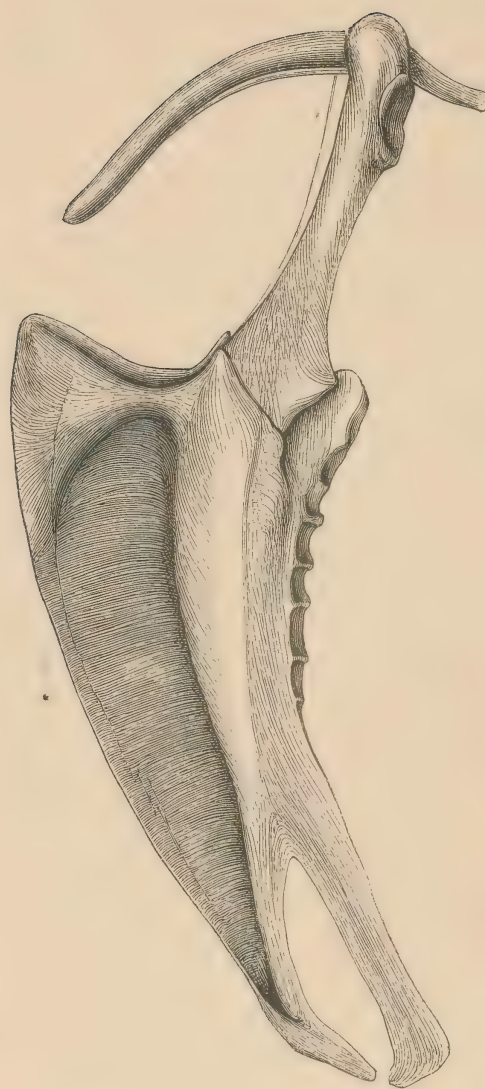
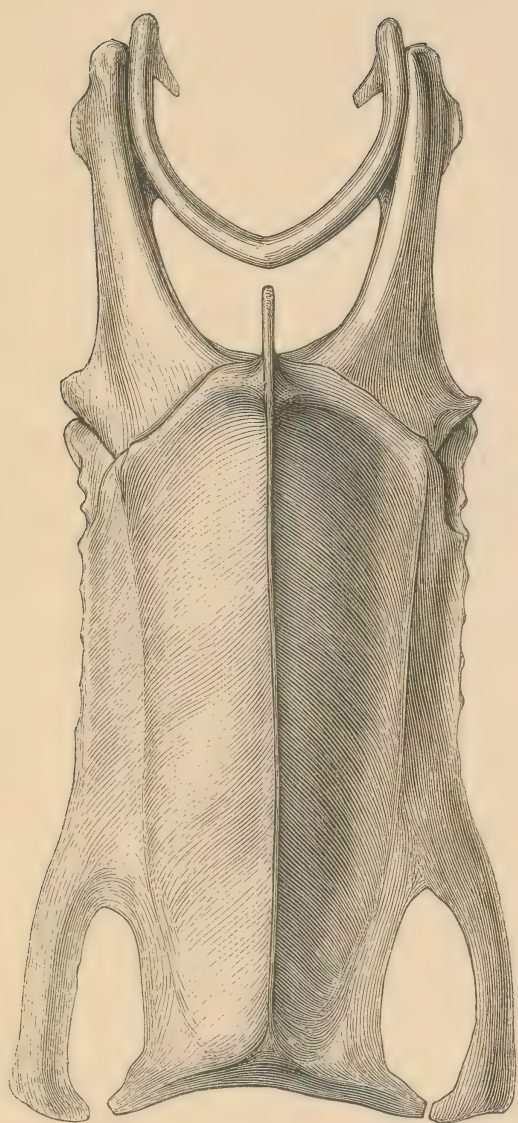
American Museum, Central Park, New York	♂, ♂, ♂ juv., ♀	4
♂ adult, from the Wied Collection. "Labrador."		
♂ adult, from Mr. Elliot's collection. Long Island, New York.		
♂ juv., " " " "		
♀ adult, " " " "		
Collection of Mr. George N. Lawrence	♂, ♀, ♂ juv.	3
♂ adult, obtained about 1842. Long Island, New York.		
♀ adult, " " " "		
♂ juv., obtained about 1865.		

Brooklyn, Long Island.

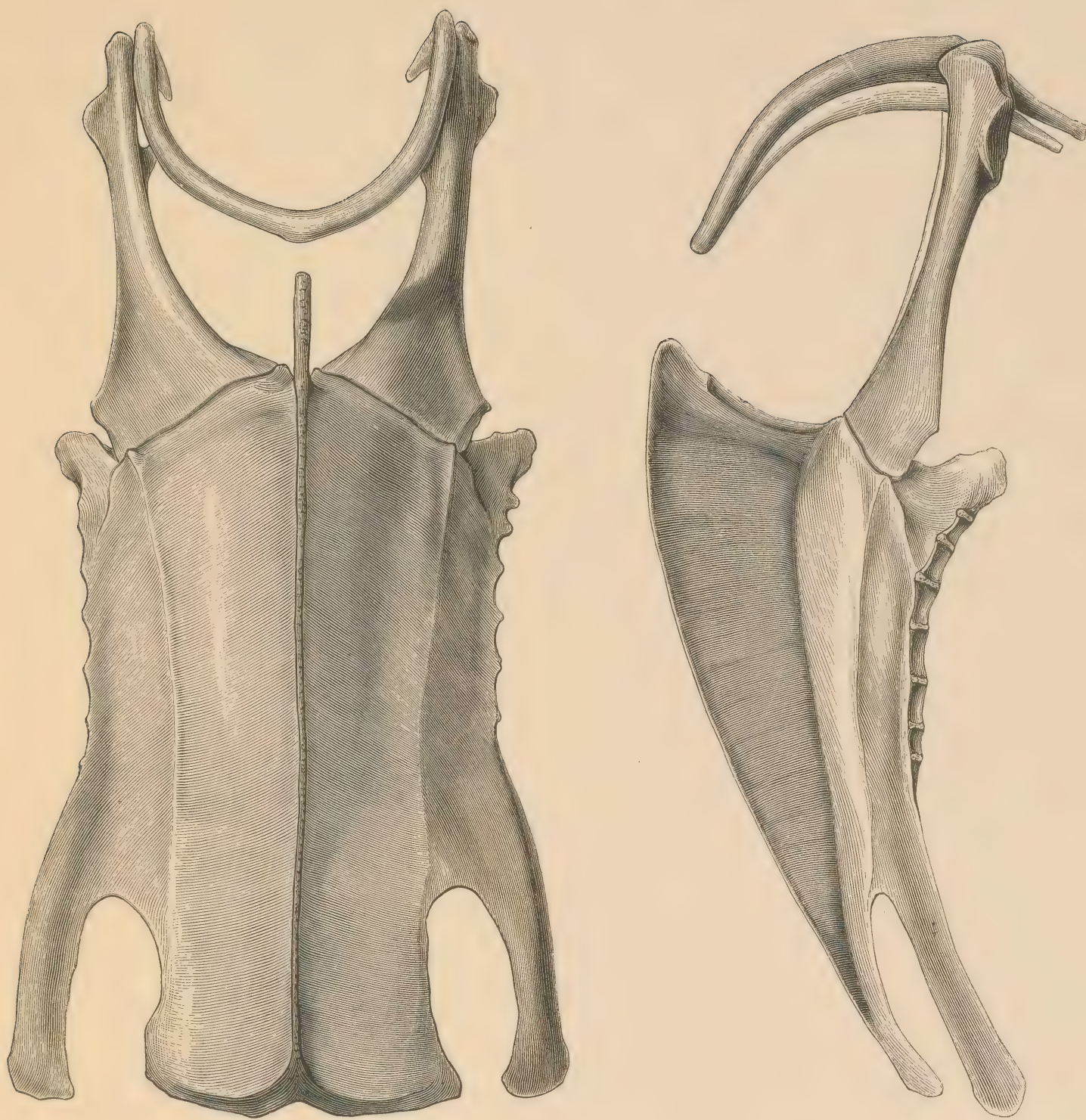
Long-Island Historical Society	♂	1
♂ adult, 1842. Long Island, New York.		
Collection of Dr. Aiken	♂	1
♂ juv., obtained within a few years from Long Island, New York.		

*List of Specimens (continued).*AMERICA (*continued*).PROFESSOR BAIRD'S LIST (*continued*).*Brooklyn, Long Island (continued).*

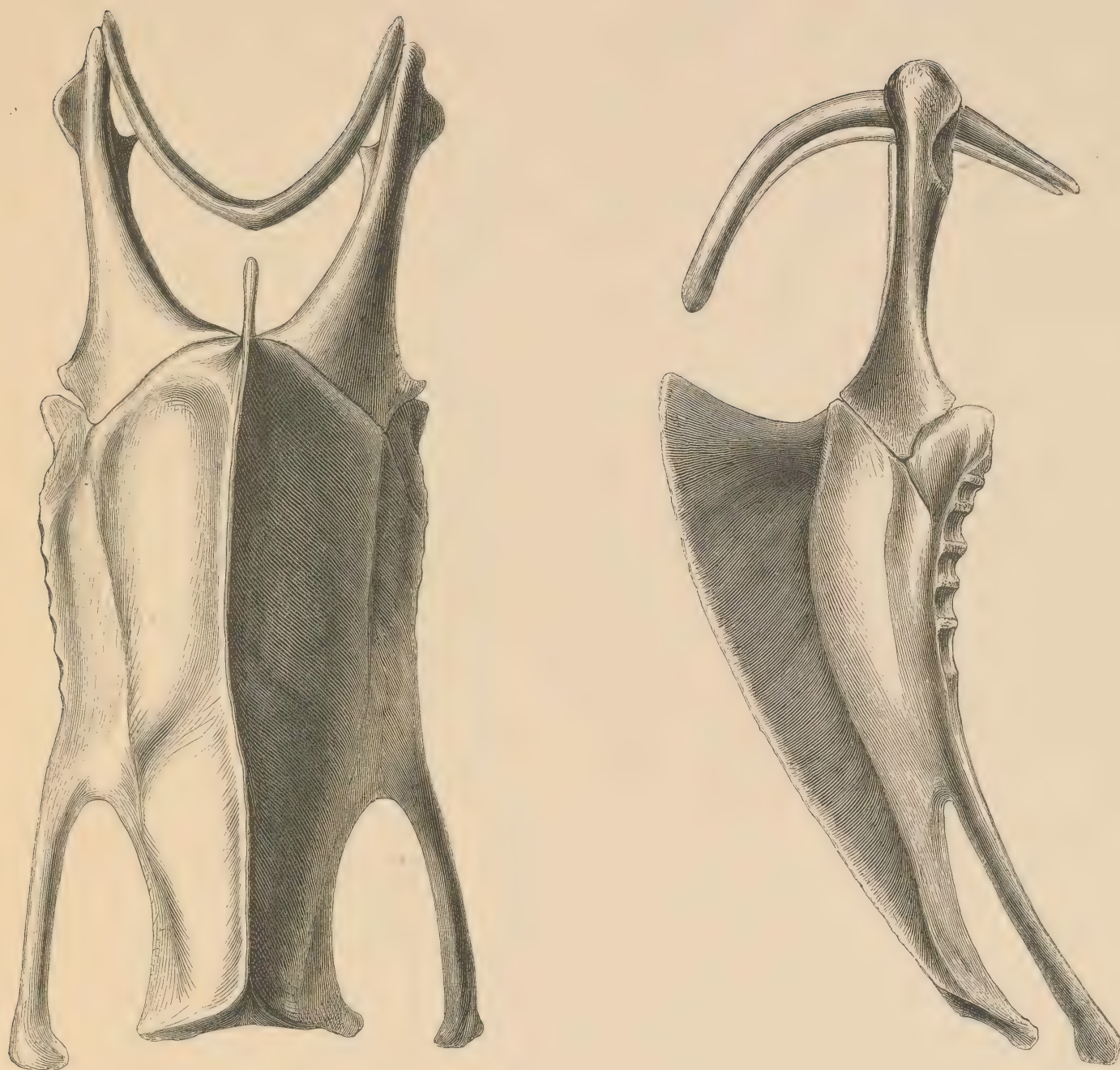
	Sex.	Number.
Poughkeepsie, New York: Vassar College	♂, ♀	2
♂ adult, from Collection of Mr. J. P. Giraud, Long Island.		
♀ adult " " " "		
Albany, New York: State Collection	♂	1
♂ adult, Long Island, New York.		
[N.B.—All the above were obtained on the south side (sea-shore) of Long Island, say about 1840–42, except when differently stated.]		
Collection of Mr. George A. Boardman, Calais, Maine	♂, ♀	2
Burlington (Vermont University)	♂, ♀	2
♂ and ♀ adult, Long Island.		
Philadelphia: Academy of Natural Sciences	♂, ♀	2
Washington: Smithsonian Institution	♂, ♂, ♀	3
♂, from Long Island.		
♂ and ♀, from Mr. Audubon's collection. Locality unknown.		
Collection of Mr. A. B. Covert	?	1?
Ann. Arbor, Mich.; cf. letter in 'Forest and Stream,' May 4th, 1876.		
Taken at Delhi Mill, Michigan, April 17th, 1872.		
Total		33



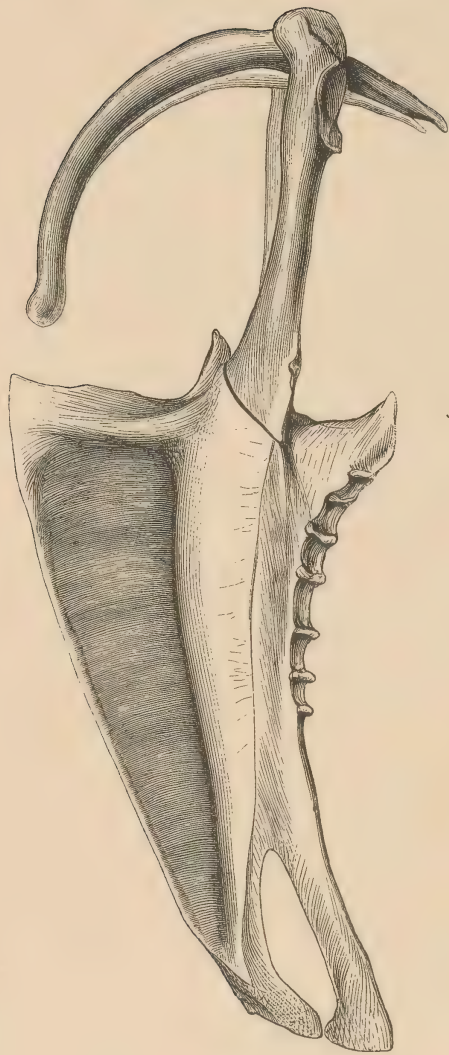
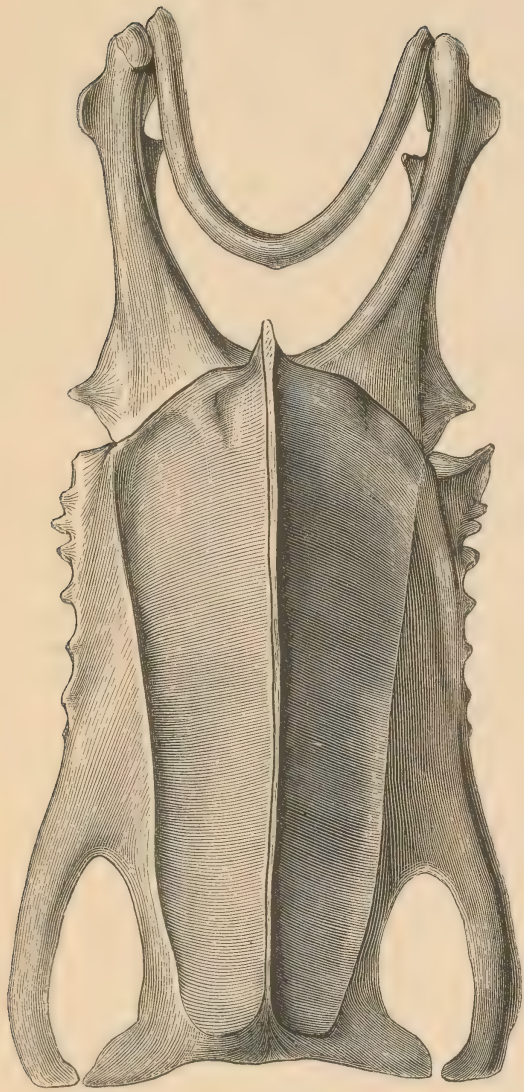
SOMATERIA STELLERI.



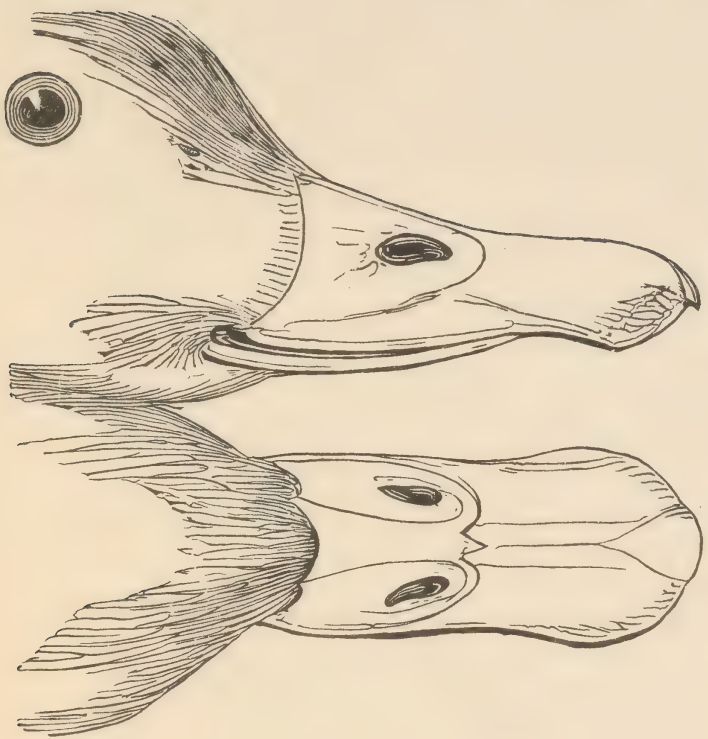
SOMATERIA MOLLISSIMA.



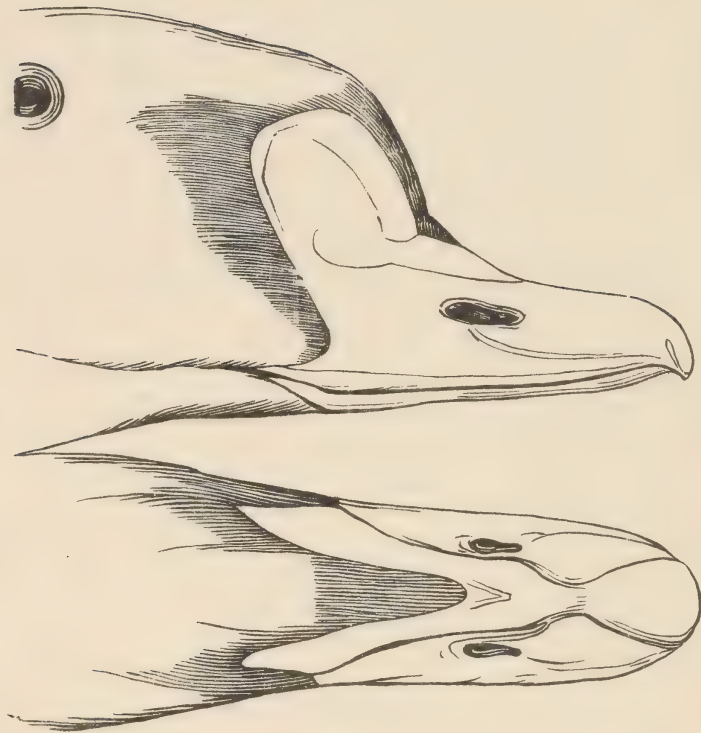
SOMATERIA SPECTABILIS.



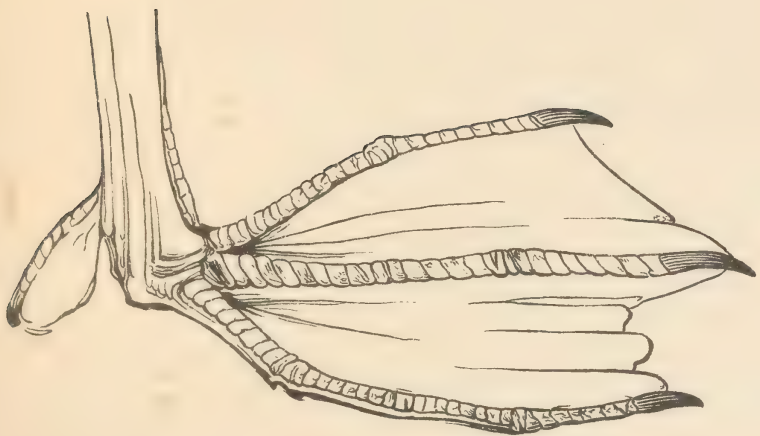
SOMATERIA LABRADORIA.



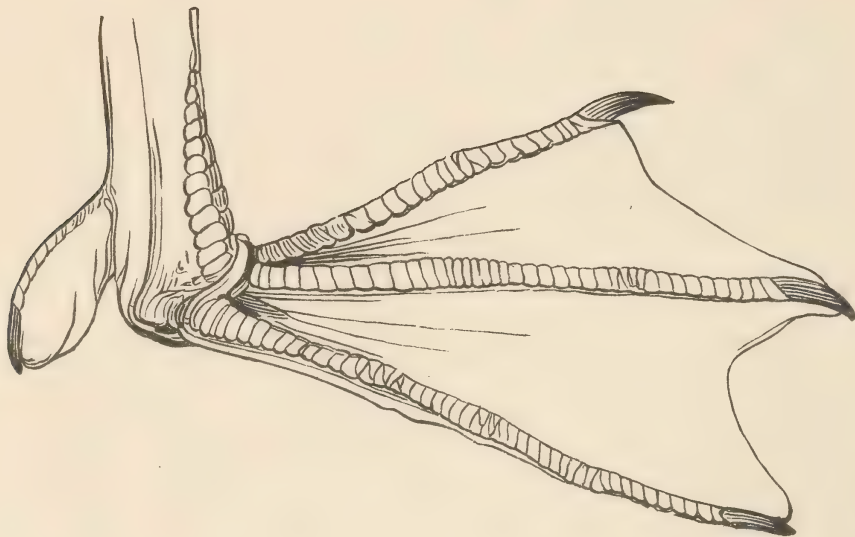
Genus. CAMPTORHYNCHUS.
Type CAMPTORHYNCHUS LABRADORIA.



Genus. SOMATERIA.
Type. SOMATERIA MOLLISSIMA.



C. LABRADORIA.



S. MOLLISSIMA.

PART VII.

“The birds lov’d well this garden space ;
For the light of the lady’s winsome face
Still made a spring in the lonely place,
 Though suns and seasons differ’d ;
The tomtits peep’d as they fed and swung
Where the pear-tree bough by the window hung;
And the finches that sat in the hedgerows sung,
 ‘ Oh ! sweet, sweet Rosamond Clifford. ! ’ ”

MONTGOMERIE RANKING : *Fair Rosamond’s Bower.*



J.G. Keulemans lith.

M. & N. Harbort del.

BRODERIPUS FORMOSUS, *Cucul.*

BRODERIPUS FORMOSUS (*Cab.*).

BY MR. G. D. ROWLEY.

(Plate LVI.)

Oriolus acrorhynchus, Schleg. Mus. P.-B. Cor. p. 104 (1867). (Specimens from the Sangi I.)
Oriolus formosus, Cabanis, J. f. Orn. xx. p. 392 (1872) ; Brüggemann, Abh. nat. Ver. Bremen, v. p. 61 (1876) ; Salvadori, Ann. Mus. Civ. Gen. ix. p. 60 (1876-77).

THIS species, the largest of the Orioles, was sent to me by Dr. Meyer. It has never been figured before, as far as I know. Gray, in his 'Genera,' has a very fine plate of an allied one—*Oriolus acrorhynchus*, Vig., of the Philippines; while the only European member of the genus is greatly prized and esteemed by British ornithologists, who pursue *Oriolus galbula*, Linn., with the utmost eagerness, and perhaps thus prevent its breeding in England, as I have good reason to suppose.

Lord Walden (now Lord Tweeddale) says (Trans. Zool. Soc. vol. ix. part 2, p. 186), after some interesting remarks on *Broderipus acrorhynchus*:—"The direction of variation in this species may therefore be said to be towards *O. melanocephalus* and from *O. galbula*; or, in other words, *O. galbula* is the older species, *B. acrorhynchus* and its allies being subsequent forms, and *O. melanocephalus* and its allies the most recent. A third species, allied to *B. acrorhynchus* and *B. frontalis*, exists in *Oriolus formosus*, Cabanis, Journ. f. Orn. 1872, p. 392, 'Island of Siou,' the largest of all known Orioles."

Dr. Meyer remarks thus :—

“I obtained this species as well from the island of Siao as from the island Great Sangi; the exact locality on the latter was Tabukan, on the north-east coast. Brüggemann (p. 61) says that ‘the bird perhaps might occur on Celebes;’ but this cannot be, according to my opinion. It is represented there by *Broderipus celebensis*, Walden. There could only be the question whether *Broderipus frontalis* (Wall.), from the Sula Islands, or an allied species, occurs on the north-eastern peninsula of the island (in Bangai) or not; on the north-western peninsula (the Minahassa) no sufficient reason has been adduced up to this time to raise the question of the occurrence of a larger species of *Broderipus*.”

Prof. Dr. Jean Cabanis (Journ. f. Orn. xx. 1872, p. 392, Meeting of the German Ornithological Society at Berlin, September 2nd, 1872) “describes an *Oriolus*, discovered by the well-known traveller Dr. A. B. Meyer, from Siao, one of the Sangi Islands, and now in the possession of the Berlin Museum. It approaches *Oriolus acrorhynchus*, Vig., from the Philippine Islands, and *Oriolus frontalis*, Wall., from the Sula Islands, but is easily distinguishable by its size, in which it exceeds all the hitherto known species of the genus *Oriolus*.

“*ORIOLOUS FORMOSUS*, Cab.

“Bill in form and coloration as in the species named above, but larger, with sharply edged ridge; front yellow; snipe black; sides of the head, nape, rump, tips of the tail-feathers, and the whole of the underparts yellow. The whole back, as well as the wing-coverts, green-coloured. The quills simply blackish, without any signs of a yellowish patch [*Spiegel*]; the quills of the hand [*Handschwingen*] slightly whitish; the quills of the arm [*Armschwingen*] greenish-edged (the same green colour as on the back), the edge becoming broader towards the back. Feet dark. Total length about 13"; bill from the angle of the mouth 1" 7", from the front 1" 5½"; wing 6" 8"; tail 5"; tarsus 1".

“Apparently the specimen in question is the only one known at present ; it is an immature bird, either a female or younger male, according to the yellow ring of the nape and the yellow rump, which contrast with the other parts of the upper plumage. The darker, more greenish tint of the upper parts is characteristic, in comparison with the immature plumage of the other allied species. The extension of the black on the head and the restriction of the yellow on the forehead are similar to those of *O. frontalis* ; but the extension of the yellow tips of the tail reaches much further, to the middle of the tail ; it measures at the inner web of the outmost rectrices more than 2", whereas the outer web is blackish-coloured about $\frac{1}{2}$ ", and on the edge still further towards the tip.

“The new species does not belong to *Oriolus broderipi*, Bp., from Sumbawa : it was compared with an old bird of the Museum Heineanum. *O. broderipi* is smaller, possesses a distinct yellow patch on the wing ; and the yellow of the front reaches further back.”

Also we find in Salvadori (Ann. d. Mus. Civ. d. St. Nat. Genova, ix. 1876, p. 60) :—

“*ORIOIUS FORMOSUS*, Cab.

“Two males” (from Peta, Sangi Islands).

“This is the largest species of the genus *Oriolus*, and resembles principally *O. frontalis*, Wall., from the Sula Islands.”

The Plate is from two birds sent me by Dr. Meyer as male and female, and now in my collection. In the young female the chest is spotted, and the head hardly shows any black. The difference of the sexes is very small.

ON
A FEW SPECIES
BELONGING TO
THE GENUS LORICULUS.

BY MR. G. D. ROWLEY.

BEFORE describing the following birds, it might be convenient that we should take a brief view of the genus *Loriculus*, on which subject Dr. Meyer has provided me with some observations.

Dr. Meyer remarks thus :—

“ There are eighteen species of the genus *Loriculus*, Blyth, now known. Dr. Finsch, in his celebrated monograph on the Psittacidæ, in the year 1868, only mentions thirteen (‘ Die Papageien,’ ii. p. 694). Since then have been discovered *Loriculus catamene*, Schlegel, from the Sangi Islands, and *Loriculus aurantiifrons*, Schlegel, from the island of Mysol, by Hoedt, in the years 1865 and 1867 respectively, *Loriculus quadricolor*, Walden, from the Togian Islands, and *Loriculus chrysonotus*, Sclater, from Cebu, by myself in the years 1871 and 1872; while *Loriculus occipitalis*, from Mindanao, has been separated from *Loriculus regulus*, Souancé, from Negros and Panay, by Dr. Finsch in the year 1874.

“ The at present known eighteen species are the following :—

“ 1. LORICULUS VERNALIS (Sparrm.).

“ *Coryllis vernalis*, Finsch, Pap. ii. p. 721.

“ *Hab.* India.

“ 2. LORICULUS INDICUS (Kuhl).

“ *Coryllis indica*, Finsch, Pap. ii. p. 714.

“ *Hab.* Ceylon.

“ 3. LORICULUS PUSILLUS, G. R. Gray.

“ *Coryllis pusilla*, Finsch, Pap. ii. p. 725.

“ *Hab.* Java.

“ 4. LORICULUS GALGULUS (Linné).

“ *Coryllis galgulus*, Finsch, Pap. ii. p. 699.

“ *Hab.* Malacca, Sumatra, Banka, Borneo.

“ 5. LORICULUS BONAPARTEI, Souancé.

“ *Coryllis bonapartei*, Finsch, Pap. ii. p. 703.

“ *Hab.* Sulu Islands.

“ 6. LORICULUS CULACISSI (Wagler).

“ *Coryllis culacissi*, Finsch, Pap. ii. p. 705.

“ *Hab.* Luzon.

“ 7. LORICULUS REGULUS, Souancé.” (Plate LVIII.)

“ *Loriculus regulus*, Souancé, Rev. et Mag. Zool. 1856, p. 222.

“ *Coryllis regulus*, Finsch, Ibis, 1874, p. 207.

“ *Hab.* Panay, Negros (*Meyer*).

“ 8. LORICULUS CHRYSNOTUS, Sclater.

“ *Loriculus chrysonotus*, Sclater, Ibis, 1872, p. 324, pl. xi.

“ *Hab.* Cebu (*Meyer*).

“ 9. LORICULUS OCCIPITALIS (Finsch).

“ *Coryllis occipitalis*, Finsch, Ibis, 1874, p. 208.

“ *Hab.* Mindanao.

“ 10. LORICULUS HARTLAUBI (Finsch).

“ *Coryllis hartlaubi*, Finsch, Pap. ii. p. 711.

“ *Hab.* Mindanao.

“ 11. LORICULUS CATAMENE, Schlegel.” (Plate LVII.)

“ *Loriculus catamene*, Schlegel, Nederl. T. v. d. Dierk. iv. p. 7 (1873).

“ *Hab.* Sangi Island.

“ 12. LORICULUS STIGMATUS (Müll. & Schleg.).” (Plate LX.)

“ *Coryllis stigmata*, Finsch, Pap. ii. p. 694.

“ *Hab.* Celebes.

“ 13. LORICULUS EXILIS, Schlegel.” (Plate LIX.)

“ *Coryllis exilis*, Finsch, Pap. ii. p. 729.

“ *Hab.* North Celebes.

“ 14. LORICULUS QUADRICOLOR, Walden.

“ *Loriculus quadricolor*, Walden, Ann. & Mag. Nat. Hist. 4th ser. vol. ix. p. 398 (1872).

“ *Hab.* Togian Island (chief island of the Togian group) (*Meyer*)

“ 15. LORICULUS SCLATERI, Wallace.

“ *Loriculus sclateri*, Wallace, P. Z. S. 1862, p. 336, pl. xxxviii.

“ *Coryllis sclateri*, Finsch, Pap. ii. p. 687.

“ *Hab.* Sula Islands.

“ 16. LORICULUS FLOSCULUS, Wallace.

“ *Coryllis flosculus*, Finsch, Pap. ii. p. 728.

“ *Hab.* Flores.

“ 17. LORICULUS AMABILIS, Wallace.

“ *Coryllis amabilis*, Finsch, Pap. ii. p. 696.

“ *Hab.* Halmahera, Batjan.

“*Hab.* Mysol (*Hoedt*); Rubi, New Guinea (*Meyer*).

“Finsch (Pap. ii. p. 694) and Schlegel (Mus. P.-B. Rev. Psitt. p. 59) grouped the species of the genus *Loriculus* together according to the black or red colour of their bill. The arrangement given above is a geographical one, as is easily to be seen by a glance at the following table. Beginning with India and Ceylon, we pass to Java, Malacca, Sumatra, Banka, Borneo, then step over the Sulu Islands to Luzon, Panay, Negros, Cebu, Mindanao, and again over the Sangi Islands in a southerly direction to Celebes, with the Togian and Sula Islands and Flores, finally from there, over Batjan and Halmahera, to Mysol and New Guinea—a long and instructive journey.

[illegible]

“We perhaps learn, among other things, that the species of the genus *Loriculus* have a tendency to vary in consequence of isolation on islands. This is especially obvious when we go from Celebes to the north; nearly every larger island or island-group possesses its own species. One could easily be induced to draw a series of similar and other conclusions as to the past history of these islands and so on, according to the facts which the geographical distribution of this genus alone indicates; but it would be over-hasty. We must wait till all these islands are better-explored. These small birds easily escape the explorer: thus, for instance, *Loriculus exilis*, on Celebes, escaped Mr. Wallace, who was, as is known, the ablest of all travellers in these countries as to discoveries in ornithology; and *L. aurantii-fronts* escaped every visitor to New Guinea till I got two specimens on the south shore of that island. As the latter bird occurs on Mysol (where Hoedt discovered the species), which lies beyond the opposite coast of the mainland, it is not to be doubted that it also lives in the intermediate districts. These small green birds are very difficult to perceive in a tropical forest; a single leaf hides them; and, besides great perseverance and skill, the ornithologist must take the hunter's chance. At present no species of *Loriculus* is known from Timor, Buru, Ceram, Aru, and a great many other islands which, no doubt, possess one species, if not two or more; and science must patiently wait, perhaps a century, before she can expect a real monograph of this interesting and beautiful genus of Parrots—a monograph which, no doubt, will afford a series of positive conclusions as to the mode of geographical distribution and as to the variation of species in particular.”

LORICULUS, Blyth.

LORICULUS CATAMENE (Schlegel).

(Plate LVII.)

Loriculus catamene, Schleg. Nederl. T. v. d. Dierk. iv. p. 7 (1873); idem, Mus. P.-B. Rev. Psitt. p. 62 (1874).

This charming little species was discovered some years ago by Mr. D. T. Hoedt, of Amboina, the able collector for the Leyden Museum, on the Sanguir Islands, north of Celebes. The male described by Professor Schlegel (see his description below) has a red forehead, which is not the case in the male bird here figured. Whether this is due to age, or some other cause, I will not now determine, not having sufficient specimens for that purpose. I have, however, figured both sexes; and it does not appear that Professor Schlegel had seen the female. (Our maps give "Sanguir;" but Dr. Meyer says "Sangi" is right.)

Schlegel (Nederl. T. v. d. Dierk. 1873, iv. p. 7, Observ. Zool. iv.) says:—

"LORICULUS CATAMENE, Schlegel.

[As introduction appear some general remarks on the genus *Loriculus* and on the geographical distribution of the species; then, p. 8,]

"*Loriculus catamene*, discovered recently on the island of Sanghir, from which our indefatigable traveller, Mr. Hoedt, sent us the adult male of this fine bird.

"This specimen was killed on the 29th of November 1865, and is well preserved. It belongs, without any doubt, to a new species, because it differs from all by the colour of its under tail-coverts being fine scarlet-red, instead of green as in the other known species, and because these feathers (as well as the upper tail-coverts, which are of the same colour) are lengthened beyond the tip of the tail-feathers. This bird resembles *Loriculus*



J.G.Keulemans lith

M & N. Hanhart imp

LORICULUS CATAMENE, (*Schlegel*).

stigmatus, from which, however, it differs (in addition to the characters mentioned above):—by the want of a red patch on the wing-coverts; by the colour of the uropygium, which is, instead of dull red and strongly copper-coloured, light scarlet-red and very bright; by this colour being much more extended, because it is found not only on the uropygium and the tail-coverts, but also on the back; by the green of this latter part, which is uniform, and not tinged with reddish yellow as in *Loriculus stigmatus*; by its dimensions being in general somewhat smaller; finally, by shorter toes, as in the latter species and in *Loriculus sclateri*.

“As regards the description of this bird, the under and upper tail-coverts are lengthened a little beyond the tip of the rectrices; tail rounded; bill black; toes short, being (like the tarsus) of a dull reddish yellow colour; general tinge of the plumage fine green, lighter and shading slightly into yellowish on the underparts of the bird; inner web of the large quills black, but with a very broad greenish grey edge below: this latter colour extends in the same manner to the large under wing-coverts. Tail-feathers with a small yellow margin, shading into red at the tip; these are of a blackish green colour above, of a bright ashy green below. A patch on the fore part of the throat extending to the middle line of the chin, front to the middle of the vertex, and the lores scarlet-red, resembling the colour of the back and the tail-coverts.

“Wing 3" 1"', tail 18"', tarsus 4"', middle toe without nail 5"', outer toe 4"'.”

Dr. Meyer collected most of these little members of the genus *Loriculus* in their native countries, which gives his observations a peculiar value; and he has been so good as to send me some information.

One species has been described as new from his series of skins, viz. *Loriculus quadricolor*, Walden, from the small islands of the Togian or the Schildpad group, in the Gulf of Tomini or Gorontalo.

Dr. Meyer remarks thus:—

“I have only been a short time on the Sangi Islands myself; but I have

twice sent an expedition there of some of my hunters—the first time to the island of Siao, the second time to the chief island of the whole group, Great Sangi. Only from here, and not from Siao, did I procure *Loriculus catamene*, Schl.—a species allied to *Loriculus stigmatus* (M. & Schl.), from Celebes. As no specimen has been recorded from Siao till now, it will be of much interest to become acquainted with the species which, no doubt, occurs here, and to state whether it is identical with the Celebean or with the Sangi bird, or if it is different from both.”

The Plate is taken from two birds, now in my collection, received as male and female from Dr. Meyer.

The habit of hanging with the head downwards, and even sleeping thus, is common in this genus; and Dr. Meyer tells me he has especially observed it in *L. culacissi*, from Luzon.

LORICULUS REGULUS, Souancé*.

(Plate LVIII.)

Loriculus regulus, Souancé, Rev. et Mag. Zool. 1856, p. 222; Walden, Trans. Zool. Soc. ix. p. 135 (1875).

Coryllis regulus, Finsch, Ibis, 3rd ser. vol. iv. p. 207 (1874).

Dr. Meyer has been so good as to send me two specimens of this bird for my collection, stated to be male and female; and these form the subjects of the Plate. They were taken, March 1872, on the south point of Negros.

The species is found in the islands of Negros and Panay, the former of which is only separated from the latter by a narrow channel on the north-west. The length of Negros is 130 miles, and the average width 25 miles; the centre of the island is said to be little known; it derives its name from the Negritos, a small race of negros. Panay is the most central of the Philippines, in form nearly a triangle, and about 110 miles long by 100 miles broad.

* Charles de Souancé.



J.G. Keulemans lith.

M & N. Hanhart imp.

LORICULUS REGULUS, *Souancé*.

In 'The Ibis,' 3rd ser. vol. iv. July 1874, p. 206, Dr. O. Finsch says :—

"Through the kindness of Count Hercules Turati, of Milan, I have received for examination a pair of a species of *Coryllis*, from the island of Negros, collected by Mr. A. B. Meyer in April 1872, which, after a careful examination, I find to belong to *C. regulus*, Souancé, as already stated by Dr. Sclater (Ibis, 1872, p. 324). In examining these specimens I find that the true *C. regulus*, described by Souancé (from a male of unknown locality), differs a good deal from the one described by me erroneously under this appellation, from a specimen in the British Museum, brought by the late Mr. Cuming from Mindanao. I therefore consider it necessary to separate the two species as follows :—

" 1. CORYLLIS REGULUS.

" *Loriculus regulus*, Souancé, Rev. et Mag. Zool. 1856, p. 222.

" *Licmetulus regulus*, Bp. Naumania, 1856, Heft iv.

" *Loriculus regulus*, Martens, Journ. f. Orn. 1866, p. 21; Sclater, Ibis, 1872, p. 324 (Negros, Panay).

" *Male*.—Grass-green, underparts lighter; front and sinciput bright cinnabar-red, vertex golden yellow; at the base of the nape a spot of dark orange-red; rump and upper tail-coverts dark scarlet-red; a large oblong gular patch bright cinnabar-red, with yellow base of feathers; quills black, on the outer web dark green, beneath ultramarine blue; under wing-coverts dark green; tail-feathers dark green, beneath dark ultramarine blue; bill coral-red; feet flesh-brown, nails dark.

" *Female*.—Like the male; the forehead also red, but the vertex green, with some yellow edgings of single feathers; the feathers on the base of mouth and around the lower mandible at their ends changing into light marine blue; the throat-patch not red, but greenish yellow, ill defined. Bill and feet as in the male.

Long. alæ.		caud.	culm.	Alt. rostr.	Long. tars.	dig. ext.	
in.	lin.	lin.	lin.	lin.	lin.	lin.	
3	4	19	6½	5	5½	6	♂
3	3	21	6	4½	5½	6	♀

“*C. regulus* differs from its near ally, *C. culacissi* (Wagl.), from Luzon, in having the crown bright golden yellow and a much darker orange-red patch on the nape. The female (not previously described) resembles very much the female of *C. culacissi*, but may be distinguished by the darker nape-patch, and the narrow light blue line round the mouth and lower mandible, which in *C. culacissi* is of a more decided blue and much broader, covering the whole loreal region and chin.

“This species inhabits the islands of Negros and Panay, where it has been collected by Dr. Meyer, to whom we are indebted for the knowledge of the exact habitat. Mr. L. C. Layard seems not to have observed it during his stay on the island of Negros, as it is not included in the valuable list of his birds published by Lord Walden (*vide* Ibis, 1872, pp. 93–107).”

Dr. Finsch also adds “that there is another specimen in the British Museum labelled *L. regulus*, and also described by me (Papag. p. 711), which shows not only the vertex and occiput yellow, but also the hind neck and nape. In this respect it comes near to *C. chrysonotus*, Scl. (Ibis, 1872, p. 324, t. xi.), from Cebu; but this latter has no orange-red spot on the nape; so that the specimen in the British Museum without exact locality may possibly turn out to belong to another, undescribed species of this group.”

Dr. Meyer remarks thus :—

“The islands of Panay and Negros are inhabited by the same species of *Loriculus*, viz. *L. regulus*; whereas the neighbouring island of Cebu has a species of its own, *L. chrysonotus*, Sclater. The latter is reared from the nest by the natives of Cebu; and I could easily procure living ones. One pair I intended to bring over to Europe, but only succeeded with a single specimen; the other escaped, in the month of May 1872, from on board the steamer, in the neighbourhood of the island of Sumatra. I do not doubt the least that it reached the shore, because we were quite near the land; and I think it is not superfluous to mention this fact, as it might be the case, even if it is not

a probable event, that this individual bird, by some chance, has or may become the progenitor of a new local race. I do not remember whether it was the male or the female. The other specimen later came into the possession of the Zoological Society of London.

“ Even without such an occasion as the one mentioned, ships assist in the dispersal of birds involuntarily : they offer resting-places for those driven out by winds and storms, which would otherwise perish from exhaustion. Just on the same route, from Manilla to London, I saw in the China Sea, west of Borneo, where no land was in sight (*i. e.* on the high sea), a Rapacious bird rest on the sailyard of the steamer and feed on a Swallow. The monsoons no doubt perform a grand function in these regions in the dispersal of birds. Those flying, for instance, in the month in which I made the voyage back to Europe (in April), from Borneo to the west, cannot return against the monsoon, and reach Palawan or China, if they do not perish before. All the small islands north of Borneo assist such an interchange of birds between Borneo and the Philippine Islands. When going to Manilla from Singapore I saw, on the high sea to the north of Borneo, two large fruit-eating Pigeons (*Carpophaga*) resting on the sailyard ; and similar instances could easily be quoted.

“ *Loriculus regulus* was taken by me more numerously in March 1872, on the mountains of the southern end of the island of Negros. This is not far from Mindanao ; indeed the mountains of this island are clearly to be seen from the southern district of Negros. The specimens were shot on the slopes of the high volcano which terminates the mountain-chain of the island in the south. My station was in the village of St. Valentia, which lies some miles from Dumaguete, the nearest place on the seashore and the largest on Southern Negros. It is valuable to know this with respect to future critical examination and understanding of the Mindanao species which probably remain undiscovered.

“ In these forests of Negros *Loriculus regulus* was plentiful. It is

remarkable that the island of Cebu, which approaches this southern point of Negros so nearly that only a quarter of an hour is required to cross the strait, possesses an allied but different form.

“From the neighbouring islands of Bohol, Leyte, &c. no species of *Loriculus* has as yet been recorded; but if any exists, it will prove very interesting to obtain it.

“In life, the colour of the iris is orange-yellow, the feet light reddish brown, the bill and the naked skin around it orange-red. It feeds on fruits.”

Lord Walden (now Marquess of Tweeddale), in his article on the birds of the Philippine archipelago, speaking of the different stages of the female, after specimens from Dr. Meyer's collection, says (Trans. Zool. Soc. vol. ix. part ii. 1875, p. 135) as follows:—

“*LORICULUS REGULUS.*

“*Loriculus regulus*, Souancé, Rev. et Mag. Zool. 1856, p. 22, ‘*patr. incerta* ;’ v. Martens, J. f. O. 1866, p. 21. no. 114; G. R. Gray, List Brit. Mus.

“*Hab.* Negros (*Meyer*).

“A large series of specimens, obtained by Dr. Meyer in the island of Negros, apparently belong to this species of Lorikeet. The origin of Souancé's type is unknown; but an individual obtained by Cuming in Mindanao was identified with Souancé's species by Mr. G. R. Gray (*l. c.*). This example furnished Dr. O. Finsch* (Papag. ii. p. 710) with the descriptions cited. The example, however, appears to be no longer extant

* “Since the above was written, Dr. O. Finsch has described the Mindanao species, *Coryllis regulus* (Souancé) apud Finsch, Papag. ii. p. 710, as distinct from the true *L. regulus*, Souancé, under the title of *Coryllis occipitalis* (Ibis, 1874, p. 208). It will therefore stand in this list as no. ‘6 bis. *Loriculus occipitalis* (Finsch). *Hab.* Mindanao.’”



J.G. Keulemans lith.

M & N Hanhart imp.

LORICULUS EXILIS, *Schleg.*

(Hand-list, no. 8182). Dr. Meyer's Negros specimens agree well with the original description of *L. regulus*; and to that species I provisionally refer them; but until they are compared with actual Mindanao examples their identity must continue doubtful. The peculiarly restricted ranges of the different Philippine species of *Loriculus* render it not unlikely that Cuming's specimens, if really indigenous to Mindanao, may belong to a representative form.

"Three examples (♀ *fide* Meyer) are without the orange-red pectoral plastron. In one a large yellow patch replaces the orange-red plastron of the male. In another this yellow space is less distinctly indicated; and in this specimen the feathers surrounding the base of the mandible, and the feathers of the throat, are verditer blue. The remaining under surface of these three examples is more or less light yellow-green, and not dark grass-green as in the adult male. Above, the female is hardly distinguishable from the adult *L. philippensis* ♂, the golden occipital patch of the adult male being absent, while the golden nuchal stripe is fully developed. A fourth example (♀ *fide* Meyer) has the entire body green, with the exception of the rump and upper tail-coverts, which are scarlet."

There is a very good map to this article—one extremely useful to the reader.

LORICULUS EXILIS, Schlegel.

(Plate LIX.)

Loriculus exilis, Schlegel, Nederl. T. v. Dierk. iii. p. 185 (1865); Walden, Trans. Zool. Soc. viii. p. 32 (1872); Schleg. Mus. P.-B. Rev. Psitt. p. 60 (1874).
Coryllis exilis, Finsch, Papag. ii. p. 729 (1868).

I ask my readers (and among them are those well qualified to decide),
 WHICH IS THE SMALLEST PARROT IN THE WORLD? If they tell me

to answer for myself, I frankly say I cannot decide, after some pains taken to find out.

A very practical and good authority, Mr. Alfred Russel Wallace, in the 'Malay Archipelago,' speaks (vol. ii. p. 430) of the Great Black Cockatoo (*Microglossum aterrimum*), and the little rigid-tailed *Nasiterna*, as the giant and the dwarf of the whole tribe. Again (P. Z. S. 1864, p. 275) he mentions "*Nasiterna* as the dwarf of the whole order." Also (P. Z. S. 1862, p. 165) the same writer mentions "*N. pygmæa*, Q. & G., remarkable as being the smallest of the Psittaci."

We must in fairness bear in mind that since these observations were written much has been discovered.

Hear now what Dr. Finsch says (*loc. infrà cit.*):—" *C. exilis* vies in littleness with *N. pygmæa*; it possesses somewhat shorter wings. *C. exilis* appears to be smaller, on account of its very weak thin bill; and therefore it may be considered as the smallest of all Parrots."

At page 154, vol. i. of this work, I remark of a pair of *N. geelvinkiana*, as compared with a pair of *N. pygmæa* in my own collection, that the former are a trifle the smaller of the two.

Dr. Meyer, as will appear in this article, has made a comparison between the skeletons of *N. geelvinkiana* and *Loriculus exilis*. Not that I think bulk of feathers, or measurement of skeletons (unless with a large series), and still less dimensions of dried skins can decide the point. I should prefer to weigh the living birds—a process I frequently adopt by means of paper bags, and without the least injury; large specimens require to be bound with broad tape. It is well known that some young birds are larger, or at least appear larger, than their parents—of which there is no need to give examples.

To make a long story short, *Which is the smallest Parrot in the world?*

Dr. Meyer has kindly provided me with some observations on *L. exilis*,

which are of interest, because no one could make them, unless he had watched the species in its native country; and commonly it happens, that those who have such an opportunity are not by taste and education fitted to record what they see. Dr. Meyer remarks thus:—

“I obtained the first specimens of this very nice little species at the end of the month of March 1871, quite in the neighbourhood of Manado, in North Celebes. After that I could not find any more till the end of April of the same year; but in the month of May they became so plentiful that I was able to get any amount of specimens. I never shot the bird again, except in the neighbourhood of Manado within these three months, and nowhere else. Rosenberg found it in the province of Gorontalo, more to the south, viz. at Tulabollo and Paguat” [Schlegel writes “Toulabello” and “Tagouat”]; “but no other places are known up to this time, as far as I am aware. No doubt the bird will have a wider distribution; but, on account of its small size, it is difficult to perceive and to procure. Neither do I doubt that there are some of its near relations still to be discovered; and it is to be hoped that all the island-groups in question may be soon still more thoroughly searched through than has at present been done.

“The nearest known ally of *Loriculus exilis* is *L. aurantiifrons*, Schlegel; with respect to coloration, the chief difference is the orange spot on the forehead in the latter species. But *L. aurantiifrons* is from the island of Mysol and from New Guinea. Should not the intervening islands offer allied species? It seems to me more than probable that they will do so.

“*Loriculus exilis* was collected by the natives of Manado, whom I put in motion to procure it, with blowpipes—*i. e.* with long bamboos through which they blow small arrows made out of pointed bamboo. It seems to feed only on the juices of flowers; for I never found any thing besides juices in their stomachs. It lives in flocks.

“The native name near Manado is ‘Tintis kitjil;’ that means ‘the

small Tintis,' 'Tintis' being the name for *Loriculus stigmatus*; 'kitjil' is a Malay word.

"In life the colour of the iris of the eye is yellow: Finsch (Pap. ii. 729) says 'red,' according to Rosenberg; but this was not the case in the Manado specimens. The colour of the feet is orange-yellow with a reddish tint: Finsch says (*l. c.*), according to Rosenberg, 'red.' But there can be no mistake as to my observations on the Manado specimens, because I made a note of the correction in Finsch's work on the spot. Bill coral-red.

"In Manado, at one time, I had six specimens living with me; but they all died very soon. They were no doubt somewhere injured by the arrow of the blowpipe; but even those which appeared to be unwounded could not be induced to take any food; they remained shy and frightened. How desirable would it be to have these lovely little creatures alive with us in Europe! but I am afraid the difficulty of bringing them over will for a long time to come deprive us of this pleasure.

"As to the size of *Loriculus exilis*, Finsch (Pap. ii. p. 750) is of opinion that 'it may be considered to be the smallest of all Parrots.' It will not be easy to decide precisely whether it is as small as the different species of *Nasiterna* or not, when only the skins can be compared. But I am fortunate enough to be able to make a comparison of the skeletons. I have before me a skeleton of *Nasiterna geelvinkiana*, Schlegel, from the island of Mysore, in the north of Geelvink Bay, and two skeletons of *Loriculus exilis* from Manado; and the exact measurements prove the *Nasiterna* to be, in all parts except the feet (which are of the same length), smaller than the *Loriculus*. The differences are not important ones; but they *are* present.

"The measurements are given in millimetres; and the millimetre is divided, when necessary, into quarters ($\cdot 25$, $\cdot 50$, $\cdot 75$) or thirds ($\cdot 33$).

"The facts are the following:—

	<i>Nasiterna.</i> millim.	<i>Loriculus.</i> millim.
" Greatest length of the skull	22·75	24
Greatest breadth of the skull	13·25	14·33
Length of the skull from the base of the bill	16·25	18
Breadth of the orbit	7·75	8·33
Length of the sternum	19	22
Greatest height of the crista sterni	6	8
Length of the coracoid	12·33	13·25
Length of the scapula	14	15
Breadth of the pelvis	10	11·50
Length of the humerus	13·50	14·75
Length of the antebrachium	16	18·50
Length of the manus	18·50	20
Length of the femur	13·75	16
Length of the ossa cruris	20	23
Length of the pes (excluding the nails) .	18	18 "

Professor Schlegel says (Nederl. T. v. d. Dierk. iii. 1865, p. 185 ; Obs. Zool. i.) :—

" LORICULUS EXILIS.

" M. von Rosenberg sends us a series of specimens of a *Loriculus*, without any doubt, new to science, and remarkable for its very small size as well as for its very simple coloration, offering no yellow tints, and the red being restricted to the uropygium, the upper tail-coverts, and a small patch on the throat.

" Wings 2" 3''' to 2" 6½''', tail 15½''' to 18'''.

" Bill and cere in the adult bright brick-red, in the young ones brownish yellow. Feet and iris in the adult of a red colour, similar to that of the bill, but paler ; in the young greyish (*von Rosenberg*). General

colour of the front and of the underparts of the bird bright yellowish green, shading more or less into greyish green on the throat, the neck, and the front. General colour of the upper parts green, somewhat bronzed. Quills black, shading into green on the upper side of their outer web, and broadly margined with greenish blue on the underside of their inner web. Under wing-coverts showing the same colour of greenish blue; middle green; small coverts yellowish green. Upper parts of the rectrices blackish green, shading more or less into black on the lateral feathers, which, besides, are tipped with yellowish. Naked skin of the chin in the adult followed by a small patch of dark scarlet-red. Rump and upper tail-coverts of the same red colour.

“The sexes offer no visible difference in coloration.

“M. von Rosenberg has observed this small bird in the neighbourhood of houses and gardens; and he says that it is rather scarce. It feeds on fruits.”

Dr. Finsch says (Papag. ii. 2, 1868, p. 729, pl. 5):—

“CORYLLIS EXILIS (Schleg.).

“*Coryllis exilis* (Schlegel), Das kleinste Papag. pl. 5.

“*Loriculus exilis*, Schlegel, Nederl. T. v. d. Dierk. 1865, p. 185.

“*Diagnosis*. Just like *C. flosculus*, Wallace, but much smaller. Wings 2" 2–6".

“*C. flosculo* simillima at multo minor. L. al. 2" 2–6".”

[Finsch's diagnosis of *C. flosculus* is (p. 728):—“In general quite like *C. pusilla*, but the gular patch red (not bright yellow).”

Finsch's diagnosis of *C. pusilla* (p. 725) is :—“Grass-green, upper parts of the back shading into orange; gular patch bright yellow; rump and upper tail-coverts red.”]

“Celebes (through Frank), in the Bremen Museum. Ad. fine grass-green; on the nape somewhat olive-yellowish-green-tinged;” and so on.

“In life feet and iris red (*von Rosenberg*).

“♂ and ♀ not different; both with red gular patch, which, however, is always small.

“Young ones of both sexes without the red gular patch; bill brownish yellow; feet greyish (*von Rosenberg*).

“This last note I owe to Professor Schlegel, who at the same time informs me that the species is from North Celebes and appears sometimes in the gardens there. It was sent to the Leyden Museum by von Rosenberg. It feeds on fruits, according to von Rosenberg.

“The well-known dealer in natural history, Mr. Frank, of Amsterdam, got two specimens from the Leyden Museum, one of which was acquired by the Bremen Museum, the other by Count Turati of Milan for his celebrated collection. The Leyden Museum possesses a whole series (five specimens), in all stages.

“*C. exilis* is very similar to *C. flosculus*, Wallace, from Flores, but is perfectly well distinguishable by its smaller size.

“With respect to its smallness, *C. exilis* disputes the rank with *Nasiterna pygmæa*; for though this species possesses somewhat shorter wings, *C. exilis* appears to be smaller on account of its very weak thin bill, and therefore may be considered the smallest of all Parrots.

	Wing.		Middle tail-feather.
	in.	lin.	lin.
“Specimen in the Bremen Museum . .	2	2	11
Specimen in the Leyden Museum . .	2	6½	15

“Specimen in the Bremen Museum:—Culmen 3''' , height of the upper bill 1¾''' , tarsus 3½''' , outer fore toe 4''' , inner hinder toe 2''' .”

LORICULUS STIGMATUS (Müll. & Schleg.).

(Plate LX.)

Coryllis stigmata, Finsch, Papag. ii. p. 694 (1868) ; Das rothstirnige Papageichen.

Loriculus stigmatus, Walden, Trans. Zool. Soc. viii. p. 32 (1872) ; Schlegel, Mus. P.-B. Rev. Psitt. p. 60 (1874) ; Salvadori, Ann. d. Mus. Civ. d. Genova, vii. p. 645 (1875) ; Brüggemann, Abh. naturw. V. Bremen, v. p. 41 (1876).

I have received some very interesting observations respecting the mode of life of this charming species from *Dr. Meyer*, who thus remarks :—

“ This bird is a common one in North Celebes. The natives of Manado, the chief town of the Minahassa (*i. e.* the most northern part of the island), who often catch the young one and bring it up, name it ‘Tintis.’ More to the south, in the district of Gorontalo, the chief Dutch settlement on the shores of the Gulf of Tomini, the natives call it, according to Rosenberg, ‘Tindito ;’ here it is also common, according to my experience, whereas I did not find it so plentiful in the southern parts of the island. The native names of the birds in these countries are of no great value, as they change in nearly every province : I am sure that there are, even in the politically united district of the Minahassa, more than a dozen different names for the same bird. It is noteworthy that the dialects of the natives differ in such a way that a man of the north shore of Celebes, from a place called Likupang, who went with me up the mountains to the beautiful lake of Tondano, 2000 feet high (a distance of only thirty miles), could not make himself understood there.

“ At all events, *Loriculus stigmatus* is spread over the greater part of the whole island of Celebes ; at least, it has been found on two of the four peninsulas of which this curiously-shaped island is constituted, viz. the north-western and the south-western ; and it is not at all probable that it should be represented by another species in those parts which unite these two peninsulas.



J G Keulemans lith.

M & N Hanhart imp

LORICULUS STIGMATUS, *Bp.*

“But it must be mentioned here that I discovered, on the island-group in the Gulf of Tomini, which the Dutch call the Schilopad Islands, and which are more generally known under the name of the Togian Islands, a species of *Loriculus* which slightly differs, and which Walden called *L. quadricolor*—a not very appropriate name, as it has more colours than four. It is intermediate between *L. stigmatus*, of Celebes, and *L. sclateri*, Wallace, from the Sula Islands, in the east of Celebes, and forms a very fine and interesting transition from the one to the other.

“Schlegel says (Nederl. T. v. d. Dierk. iii. p. 186) that, according to Rosenberg, *L. sclateri* also occurs in Northern Celebes, *together with L. stigmatus*, but that it is very scarce there.

“I must confess that I doubt the correctness of this statement; and I suppose that some error has crept in here,—for instance, that birds of a collection from the Sula Islands got mixed with the birds sent from Celebes, or that labels have been confounded—an occurrence which, unfortunately, often happens, through the inattention or the ignorance of those who unpack collections from the far east or west. At least, it is conceivable, or not incomprehensible, according to Darwinian principles, that these slightly different forms represent each other in geographically neighbouring countries; but it would be obvious that such forms kept distinct from one another (*i. e.* did not mix) when together in the same forest.

“As, up to this time, *Loriculus sclateri* has not again come from North Celebes, I propose to leave its occurrence questionable till it arrives.

“It would, no doubt, be interesting to know which species of *Loriculus* may inhabit the south-eastern and north-eastern peninsulas of Celebes. I can only elucidate this point as far as my experience goes.

“On the southern shores of the Gulf of Tomini, where I collected in the year 1871, I got, near Posso, *Loriculus stigmatus*. Therefore it is not impossible that to the south from this point, and on the south-eastern peninsula, the same species occurs. Neither the earlier Dutch travellers,

who visited, among others, the island of Buton, in the south-east, nor the Italian naturalist, Beccari, who recently went to the south-eastern peninsula itself, report, as far as I am aware, a *Loriculus* from there.

“The part of Celebes which lies between the Togian and the Sula Islands, the north-eastern peninsula, is called Bangai. Walden (Ann. & Mag. Nat. Hist. 4th ser. vol. ix. 1872, p. 398) erroneously says, ‘Bangai and Ternate.’ Ternate is an island near Halmahera; but Bangai belongs to the Government of Ternate. About this part of the island I cannot give any information. It would be a very interesting point to ascertain which species lives there; for if it be *L. stigmatus*, the two allied forms, *L. sclateri* and *L. quadricolor*, will prove to be insular forms derived from a parent stock, *L. stigmatus*, both changed in a somewhat similar manner, perhaps through the same (say ‘insular’) conditions, but not in quite the same manner. If, on the other hand, the species which inhabits Bangai should prove to be not *L. stigmatus*, it would certainly be of interest to know whether it is *L. sclateri* or *L. quadricolor*, or (as is possible) a form which is intermediate between these two.

“But to return to *Loriculus stigmatus*. The bird lives singly or in pairs, not in flocks. It feeds on soft fruits, as bananas and the like, and therefore is to be found in the plantations near the villages. In the beginning of March of the year 1871 it was especially plentiful near Manado; but I got it throughout the Minahassa, and during the whole time of my stay (from December till July)—further, in August, on the south shore of the Bay of Tomini and near the lake of Limbotto, in the district of Gorontalo.

“In the month of March a native of Manado brought to my house a young female of *L. stigmatus* alive, about a fortnight old. It was quite green, except its light-yellow shoulder-edges; underparts lighter green;

nape light-orange-tinged ; the red of the upper tail-coverts already perfect ; bill yellow ; feet yellowish brown ; underparts of the wings bright blue. It chiefly fed on bananas in captivity, became very tame, and was a long time in our possession. It followed my wife everywhere in the house, and did not rest till it was near her ; then, without help, climbed up from the ground to her shoulder or to her head. It loved best to take food from her mouth, and licked up tea from her lips. When we took our tea in the afternoon, and the little bird only heard the rattling of the cups, it became much excited, and did not rest until its cage was opened and it could come near the table ; it then took the tea out of a small basin or a spoon. When in its cage, and my wife passed by, it clapped its wings till she let it out. When we left Manado for a fortnight, on a boat-tour round the north shores of Celebes, through the Straits of Banka and Limbe, we gave it to a neighbour in board and lodging. Returned, he reported that it had been melancholy throughout the whole time. When it saw my wife again, it became much excited ; this I observed myself. Being placed in the same cage with the smaller *Loriculus exilis*, it always bit it ; they could not remain together. But with the larger *Trichoglossus meyeri* it became anxious ; nevertheless it attacked that bird as much as possible.

“When we left Manado for a longer time, to spend some months in the mountainous regions of the Minahassa, we trusted our pet again to that neighbour ; but when we came back he reported that it had died from sorrow. He had not been able to cheer the creature up ; it cried incessantly, and at last was found dead. The man in whose care it was, had seen and knew exactly how we had treated the bird ; it therefore did not die on account of wrong or improper food &c. I will not decide whether the explanation that it died from sorrow, was the right one or not ; at all events, it was an amiable lovely bird, for whose death we mourned. But I should not have thought it worth while to narrate this at all, were it not to show that even these small Parrots are very sagacious and attractive creatures.”

Dr. Finsch observes as follows (Papag. ii. 2, 1868, p. 695):—

“CORYLLIS STIGMATA (Müll. & Schleg.). . . .

“*Tindito*, natives of Gorontalo (*von Rosenberg*). . . .

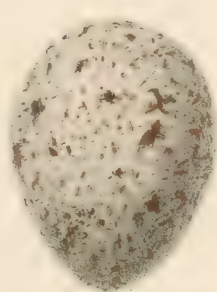
“This very distinguishable species is a discovery of the Dutch traveller Dr. Forsten, who obtained it in the neighbourhood of Gorontalo and Tondano, in North Celebes. Wallace collected in the south, near Macassar and Menado*.

“On its mode of life we have no report at all. An excellent woodcut of this species is given by Professor Schlegel, in ‘*Dierentuin*,’ p. 70; a better figure does not exist at present.”

The Plate is taken from two birds sent me by Dr. Meyer as male and female, and now in my collection.

The total length is about $5\frac{1}{2}$ inches; but measurements of dried skins are worth little.

* [Menado is in the north of Celebes.—G. D. R.]



Edgar W. Allen, ntr.

M & N Hanhart imp.

NEST AND EGGS OF
WHITE'S THRUSH.
Turdus varius, Paliss.

ON THE
NESTING AND EGGS OF WHITE'S THRUSH,
OREOCINCLA VARIA (Pall.).

BY MR. R. SWINHOE.

(Plate LXI.)

EVERY tyro in the study of British ornithology must know the magnificent Thrush shot in Hampshire, and named (in honour of the celebrated naturalist of that county, Gilbert White) *Turdus whitei*, or White's Thrush, by T. C. Eyton, Esq.

Mr. Gould figured it in his 'Birds of Europe,' plate lxxxi. Temminck, in his 'Manuel d'Ornithologie,' introduces "Merle variée ou de White," "*Turdus varius* seu *whitei* (Gould)," as a bird of Europe. He says:—"It visits, accidentally, Western Europe; five or six examples only of it can be cited—one in England, two in Hamburg, one on the Rhine, another in Germany (without any indication of place); and then (1788) a specimen has been killed near Metz; they speak again, but vaguely, of several other captures. The species is more abundant in Japan, perhaps also in some other parts of Asia, whence it would come to Europe. I have found no marked difference in coloration of plumage between Hamburg specimens and those of Japan; one sees only a very slight difference of size, and in the bulk of the

beak between these and specimens from Java ; compared likewise with those of Australian countries, these last are larger, although wearing the same plumage."

Pallas, in his 'Zoographia Rosso-Asiatica' (page 449, tome i.), introduces this species as "*Turdus varius*" and on the faith of Gmelin senior and Stella, who observed and described it in the high land of Siberia—the first at Krasnojari, near the river Jenissei, the other about Bargusin. Pallas never obtained it himself.

In March 1859 I procured a fine male in the garden of the old Consulate at Amoy. I had watched him for some days previously : he grubbed about under the bushes, and took to the trees when disturbed, with a loud sibilant note.

I procured a paler variety in Formosa, and separated this as a species in 1863. A similar pale variety was taken on board ship in the Namoa Straits, near Amoy ; and I then saw that the Formosan bird was merely a variety of the ordinary species.

It was not until I got to Ningpo, in 1872, that I found that White's Thrush spent the summer in the wooded parts of the hills around that neighbourhood ; and I thence conclude that it resides in similar hills, in summer, all down the coast of China, resorting to the plains and gardens in its winter migrations.

In May 1872 I resided for a time at a large temple near Ningpo called "Chin-hooze," in the midst of woods situated on a hillside. Some boys pointed to a nest, hidden in the upper branches of a high pine tree, and asked if they should climb to it. Thinking it was a blackbird's I assented, and then wandered away. Soon after I met the boys, who carried in their hands the nest (to all appearance that of a Blackbird), with

three eggs, which, though so like a Blackbird's, had the dots so minute that they struck me as being of an allied species, probably the *Oreocincl*a. I went back to the tree; and on the bough where the nest had been were the parent birds in trouble at their loss. I saw them distinctly, and recognized them as being of this species.

The nest was for all the world like that of the Chinese Blackbird—about the same size. It is about 4 inches deep, 7 inches in outer, and $4\frac{1}{2}$ inches in inner diameter, and $3\frac{1}{4}$ inches in depth. The eggs are three in number, ovate, whitish, with minute reddish spots.

ON THE GENUS PITTA.

BY MR. G. D. ROWLEY.

“Τῷ δέ τ', ἀνευθεν ἔόντι, μελάντερον, ἤϊτε πίσσα*,
φαίνεται ἰὸν κατὰ πόντον.”

HOMER: *Iliad*, iv. 277.

WHAT is a Pitta? What does it mean? In vain do we turn to the works of various authors, one after another, to find an answer. We read many valuable contributions to ornithology; but none tell us what we want to know.

Although Homer's poetic comparison of the son of Atreus reviewing the troops of the two Ajaces, to a goatherd looking at a waterspout as it traverses the deep, occurs to the minds of all of us when the word *Pitta* is mentioned, yet we wish that (in 1816) Vieillot had selected something prettier for a genus which, in our estimation, is essentially beautiful and worthy of it.

But though most people would imagine this ornithological word to have a classical derivation, and one dictionary of scientific terms positively states that it has, yet Vieillot most probably got the name from De Montbeillard, with an Indian origin for it, and it is not classical at all.

* πίσσα, Att. πίττα, ἦ, pitch.

In Ray's 'Synopsis' (1713), p. 195, we find :—

“12. *Pica Indica vulgaris*: Ponnunky pitta; *Gent.* Ponnandutty; Maderaspatensibus: The MADRASS JAY. Fig. 10.” &c.

The species meant was *Pitta bengalensis*; and the above passage occurs in the supplement to the 'Synopsis,' which is headed (p. 193) thus :—

“Mantissam hanc avium Maderaspatanarum addidit peritissimus Naturalis Historiæ Cultor D. Jacobus Petiverus S.R.S. Quarum Descriptiones ex Iconibus elegantissimè pictis, sibi à D. Edvardo Buckley, ab arce Maderaspatana (vulgo Fort St. George) missis, desumptæ sunt.”

Ray's* 'Synopsis' was published after the author's death, by Derham. Hence it appears that Mr. Edward Buckley is responsible for the word 'Pitta' as part of the name by which he believed the Gentoos, or Hindoos of Madras, knew *Pitta bengalensis*.

De Montbeillard (Hist. Nat. Ois. iii. p. 413), when speaking of “La breve que M. Edwards á representé pl. 324, sous le nom de *pie à courte queue des Indes orientales*,” says, in a note :—“Cette breve paroît être le même oiseau que la *pie ordinaire des Indes* de M. Ray, & qui s'appelle aux Indes Ponnunky pitta, & Ponnun - duky. Voyez *Synopsis Avium*, p. 195,” &c.

Professor Newton informs me that “Pona-inki,” which Mr. T. C. Jerdon gives as the Telegoo name of *Pitta bengalensis*, is obviously identical with “Ponnunky,” given by the old collector Buckley as the prefix to what in those days was called the *Gentoo* name of the same species.

“Pitta,” as he was informed by his learned colleague, Professor Cowell,

* Never did the forge send forth a nobler son than John Ray, not even when it gave Quintin Matsys to the world.

signifies merely "bird"*. As the authority of the Professor of Sanscrit in the University of Cambridge cannot be disputed, we may consider that we know what *Pitta* means.

As regards the generic name *Brachyurus* †, it was given, according to Gray, by Thunberg ‡ in 1821, embracing "*Paludicola* of Mr. Hodgson (1837), which name he changed to *Heleornis* in 1844."

It seems, however, that *Pitta* and *Brachyurus* are strictly synonyms, and that they have absolutely identical types; therefore both cannot stand as coequal genera. More than that, if *Pitta* had not priority, *Brachyurus* was preoccupied in Mammalia by Fischer so early as 1814; at least, so says Agassiz, in his 'Nomenclator.'

Thunberg puts into his genus *Brachyurus* two other species, *B. gularis* and *B. ruber*, both, he says, from Brazil, where it is needless to remark that there is no *Pitta* at all.

We have:—BRACHYURUS, gen. nov., Thunberg, Kongl. Vetenskaps Akademiens Handlingar, 1821, p. 370.

The type given is "*Turdus triostegus*," Sparrman, Museum Carlsonianum, iv. tab. 84 (1789) = *Corvus brachyurus*, Linn. Syst. Nat. edit. 12, i. p. 158 = *Pitta bengalensis*, Vieill. *fide* Sundevall, Kritisk Framställning af Fogelarterna m. m. p. 13 (1857).

The paper just quoted is an attempt (and a very successful one) to determine the species of birds figured in Sparrman's work and Levaillant's 'Oiseaux d'Afrique,' and was published in the new series (Ny Fjöld) of the 'Kongliga Svenska Vetenskaps-Akademiens Handlindgar' ('Transactions of the Royal Swedish Academy of Sciences'), vol. ii. no. 3.

* So "manu" is the general name for a bird in various groups of islands south of the equator.

† *Brachyurus*: th. *βραχύς*, short, and *οὐρά*, *âs*, *ῆ*, the tail.

‡ Carl Peter Thunberg, the Swedish naturalist (or, especially, botanist), according to Engelmann's 'Bibliotheca Zoologiæ,' died 1828.

It would *appear* that the proper scientific name of the Ponnunky Pitta should be *Pitta brachyurus*, not *P. bengalensis* as generally stated, and certainly not *Brachyurus bengalensis*.

It is not desirable here, to go at length into the subdivisions named by Mr. A. R. Wallace (*Ibis*, vol. vi. 1864, pp. 105–109); a reference to them is sufficient.

The affinities of the genus *Pitta* are dwelt upon by the above author in the same article.

Though the name *Pitta* has become pleasing from association, yet I should not have adopted it at first. The system of two names, now in use, is most convenient in science; but the selection of those names should be judicious; and any change of them is to be avoided, as producing confusion in “Biology”—which word is itself an example or case in point, being used with philological “*sorrow*” by Huxley, though his Greek regret is not strong enough to make him substitute “Zootocology” (*cf.* *Nature*, Jan. 11, 1877, p. 220). Instances may nevertheless arise where change is necessary: *Aluco flammeus* is one; here *Aluco* is properly used instead of *Strix*.

It is not, however, to ornithology, but to botany that we owe the binomial method of nomenclature, first suggested by Augustus Quirinus Rivinus in 1690*, therefore before that lucky year (1707) which saw the birth of the unequal two, the illustrious Swede and the Frenchman, Karl Linnæus and George-Louis le Clerc Buffon—although, in point of fact, we may truly say that “with Linnæus, and him only at a late period of his life,” it was first employed.

Mr. Wallace (‘Geographical Distribution of Animals,’ vol. ii. p. 301)

* See Miss Arabella B. Buckley’s ‘History of Natural Science,’ p. 209.

speaks of the Pittidæ as one of the two Old-World groups belonging to the Formicarioid Passeres, with a very restricted distribution ; and he expresses his admiration of the exquisitely coloured Pittas of the Oriental Region (vol. i. p. 316).

Mr. W. A. Forbes (Nature, Nov. 16, 1876, p. 58) writes as follows :—

“ There are three families (*i. e.* Paictidæ, Pittidæ, Eurylæmidæ), instead of *two*, of the Formicarioid Passeres in the Old World, of which the Pittidæ can hardly be said to have ‘a very restricted distribution.’ Vol. i. p. 16, Mr. Wallace describes them as short-winged birds, ‘such as Toucans, Pittas, and Wrens,’ which ‘can fly very few miles at a time.’ Certainly the wing of the British Wren is the very type of a cup-shaped organ of short flight, and the owner is one of the few English species which, one would fancy, never crossed the sea ; yet there is reason to suppose that it may.

“ At vol. ii. p. 297 Mr. Wallace speaks of the Pittidæ thus :—

“ ‘ PITTIDÆ (4 genera, 40 species).

“ ‘ *General Distribution.*

“ ‘ Palæarctic subregion		—, —, —, 4
Ethiopian subregion		—, 2, —, —
Oriental subregions		1, 2, 3, 4
Australian subregions		1, 2, —, —’

“ He states that these Thrush-like birds ‘are more nearly allied to the South-American Pteroptochidæ than to any other family.’ They are most abundant in the Malay archipelago, between the Oriental and Australian divisions of which they are pretty equally divided. They seem, however, to attain their maximum of beauty and variety in the large islands of Borneo and Sumatra, from whence they diminish in numbers in every direction, till we find single species only in North China, West Africa, and Australia.”

Gray says ('Genera of Birds,' vol. i.) :—"The species of the genus *Pitta* seem to prefer the neighbourhood of water, and are sometimes observed to play in the shallow streams, not frequently venturing above the knees."

In his richly illustrated work the 'Birds of New Guinea' (part ii.), Mr. Gould has placed his *Pitta maxima* in a stream, with the water dripping from the bird.

PITTA ROSENBERGI (Schlegel).

(C. B. H. von Rosenberg's *Pitta*.)

(Plate LXII.)

In 'Reistochten de Geelvinkbaai op Nieuw-Guinea,' p. 138, we find that Herr von Rosenberg, the German naturalist, who made such splendid collections for the Leyden Museum, has the following concerning *Pitta rosenbergi*, Schl.:—

"♂ ♀. Allied to *P. novæ guineæ*, but differs from this species by its longer tarsus and its somewhat wider bill, by the black extending to the middle of the crop, by its soft glossy green breast, and the red streak down the breast. The blue colour of the sides is also more intense; while the tail and its upper coverts are uniformly black.

"*Hab.* Schouten Islands."

Prof. H. Schlegel says ('Muséum d'Histoire Naturelle des Pays-Bas,' 1874, p. 8) :—

"PITTA ROSENBERGII, Schleg. Tijdschr. Dierk. vol. iv. p. 16.

"Rappelant la *Pitta novæ guineæ* qu'elle remplace dans l'île de Soëk, du groupe de Schouten; mais s'en éloignant par les traits suivants :—Rectrices et grandes suscaudales d'un noir profond, et n'offrant que rarement un fin liséré bleuâtre. Petites suscaudales comme dans la *Pitta novæ guineæ mefoorana*.



J. W. Kemmians, lith.

M & N Hanhart imp

PITTA ROSENBERGII, (*Schlegel*.)

Tarse de 2 à 4 lignes plus long. Mandibule supérieure beaucoup moins carénée et, à sa partie antérieure, arrondie et plus large. Plastron noir de la gorge s'étendant jusque sur le milieu du jabot. Le jaune-vert argenté et luisant qui occupe, dans la *P. novæ guineæ*, le jabot et la poitrine, est remplacé par un vert foncé et non pas luisant. Tache noir de l'abdomen remplacée par du rouge. Bleu des flancs plus vif et plus brillant. Une tache blanche à l'aile.

“Tarse 20 lignes et demie à 21 lignes et demie.

“1, 2, 3. Mâles : tués en Mars 1869 ; Soëk (*von Rosenberg*).

“4, 5, 6. Femelles : tuées en Mars 1869 ; Soëk (*von Rosenberg*).”

With reference to Mr. Wallace's remark, that though called Ant-Thrushes, he had never found that they had eaten ants, but simply coleoptera, Dr. T. C. Jerdon says (*Ibis*, April 1872, 3rd ser. vol. ii. p. 133) that “Mr. Blanford found black ants in one specimen [of *Pitta bengalensis*], white ants in others.” Dr. Meyer, in his letter to me, says that in *Pitta rosenbergi* he found insects. The living example of *Pitta bengalensis* now at the Zoological Gardens, Regent's Park, has two sorts of food :—the one (for Thrushes) a mixture of rice, boiled carrots, and potato, mixed with cut raisins, crumbs of bread, crushed hemp-seed, and hard-boiled egg ; the other (for Nightingales &c.), bread-crumbs, meat cut fine, hard-boiled eggs, and boiled carrot.

As it is not often that a living *Pitta* can be closely observed, I perhaps may be excused for adding, of *P. bengalensis*, that this individual has never been heard to utter any sound. It hops about all day, is crepuscular in its habits, and retires late. In the afternoon it stands on one leg, with the head drawn in. The nature of this species is to be extremely shy, in flight very rapid, and the turning evolution is peculiarly graceful. It does not run, but jumps about the ground in bounds double its own length. When a meal-worm was thrown to it, it spread its wings and tail, showing its beautiful

plumage to the best advantage. The colours of the soft parts in life are as follows:—legs pale flesh-colour, soles yellowish; bill black, gape pale chrome-yellow. In its sudden darts this *Pitta* somewhat resembles *Cinclus*.

The above details were the result of a careful examination by Mr. Keulemans for the purpose of this article, and were taken down on the spot.

Returning to *Pitta rosenbergi*, I now come to some valuable particulars received by me from Dr. Meyer. He remarks as follows:—

“*Pitta rosenbergi*, Schlegel, is one of the most common birds on the island of Mysore (‘Willem-Schouten Island’ of the Dutch). In the month of April 1873, in the neighbourhood of the chief Papuan settlement there (Kordo), I obtained a good series of this beautiful bird. My general experience in Celebes, in the Philippine Islands, in New Guinea, and elsewhere, was that Pittas are rare birds. It is not often that you hear the flute-like cry of *Pitta rosenbergi* in the forests; but if once heard, it is not difficult to shoot it, because you can attract it by imitating its voice, and may thus draw it close to your gun*. Nevertheless the species is a very shy one, and if you do not keep perfectly quiet it will quickly go away. It only feeds upon the ground, and passes quietly through the shrubs and on the fallen leaves of the deeper parts of the tropical forest.

* This accords with what Mr. E. P. Ramsay states, in his article on Australian oology (*Ibis*, n. s., vol. iii. p. 415). Speaking of *Pitta strepitans*, he says:—“By means of its note, which is easily imitated in trying to whistle the words ‘want-a-wat(ch),’ the bird may be called up within a few feet of its pursuer. I have frequently called it to me, and watched its graceful motions as it would hop on the dead logs, roots, and spurs of the trees, run along for a few yards, then stop and call, and appear greatly excited at not finding its supposed mate.”

Again, Mr. A. R. Wallace, in an interesting article on the genus *Pitta* (*Ibis*, vol. vi. p. 102), says:—“A dead *Pitta*, as it lies when just shot, is exceedingly beautiful. You do not find it lying on its side, or all in a heap, like other birds, but invariably flat on its back, the feet up in the air, the plumage beautifully puffy, and the crimson patch on the belly displayed to the best advantage.”

—EDITOR OF O. M.

“It was, of course, an astonishment to me, when I found the black-headed Pitta plentifully on the island of Mysore. The male cannot be distinguished from the female, except by dissection. The colour of the iris is brown, bill black, feet and claws of a greyish rose-colour in life. In the stomach I only found a few small insects; and I may mention that on the black head I found a good many red lice.

“The special geographical distribution of the Pittas, as well of the black-headed as of those with the whole of the underparts red—each group for itself, and both in relation to each other—offers many points of interest with respect to variations from a primitive type, and also in regard to the conclusions which may be drawn from the actual distribution of the now distinct species, with a view to the former connexion and relation of the separate islands which they at present inhabit. Pittas are certainly birds which cannot cross arms of the sea. I do not, however, wish to enter upon these points here, but only to mention some of the facts which I observed.

“On the island of Mysore I did not find a single specimen of the red-bellied Pittas, whose type for the Papuan Islands is *P. mackloti*, Schlegel. May this be the reason why the black-headed *P. rosenbergi* is so plentiful there?

“On the island of Jobi, on the other hand, I only found *Pitta mackloti*, and no black-headed species. But I cannot say that *P. mackloti* is a common bird there, as is *P. rosenbergi* on Mysore; it is quite as rare as Pittas are generally elsewhere.

“Besides *Pitta rosenbergi*, I must except *P. maxima* from the rule of scarceness. On Halmahera (not Gilolo*, as the island is often wrongly called, after a single district) it really is a very common bird.

“I do not say that there exist no red-bellied Pittas on the island

* Gilolo, Halmahera, or Djillolo, the largest of the Moluccas. It is of volcanic origin.—
EDITOR OF O. M.

of Mysore and no black-headed ones on Jobi ; but at all events, if existing, these must be rare, and they are still to be discovered.

“ There appears to be not the least difference between the *Pitta mackloti* from Jobi and that from the mainland of New Guinea, except, perhaps, that the first has the neck redder.

“ On Mafoor I did not get a Pitta ; but *Pitta novæ guineæ*, M. & Schleg. (Schlegel, Nederl. T. v. d. Dierk. iv. 1873, p. 16), which, however, Schlegel later (Mus. P.-B. Pitta, Rev. 1874, p. 8) separated as *Pitta novæ guineæ mefoorana*, Schleg., was first recorded from there.

“ It is remarkable that Mysore has a black-headed species which differs much from the typical one, and Mafoor a very near ally of the latter— as Mafoor possesses some other peculiar birds in common with Mysore, viz. *Nasiterna geelvinkiana*, *Lamprotornis magnus*, *Ptilopus speciosus*, &c. ; but as it contains, on the other hand (just as Mysore), some very pregnant species of its own, viz. *Tanysiptera carolinæ* (represented on Mysore by *Tanysiptera riedeli*), no great stress can be laid on the fact.

“ As our knowledge stands for the moment, the distribution of the Pittas on the islands and the coasts of Geelvink Bay is the following :—

	“ New Guinea.	Mysol.	Jobi.	Mysore.
“ <i>Pitta novæ guineæ</i>	1	—	—	—
<i>Pitta novæ guineæ mefoorana</i> . .	—	1	—	1
<i>Pitta rosenbergi</i>	—	—	—	1
<i>Pitta mackloti</i>	1	—	1	—.”

Mr. Gould says, in his ‘ Birds of New Guinea,’ part iv.:—

“ In the richness of its colouring and broad sweeping tints on the under-surface, *Pitta rosenbergii* will ever rank among the finest of this gorgeous group of birds. The nearest ally to it is the *Pitta novæ guineæ*. In Rosenberg’s Pitta the lively collar of silvery white on the lower part of the throat, so conspicuous in *Pitta novæ guineæ*, is wanting ; on the other hand, the blue colouring of the flanks is much richer. In size the two birds are

about the same, as is also the black colouring of the head, and green of the upper surface. It was first described by Professor Schlegel in 1873. . . .

“Crown of the head, nape, and throat black; back and upper surface generally brownish olive-green; the same colour also pervades the chest, where it borders on the black of the throat; the brownish green colouring of the chest gradually passes into deep blue on the flank; centre of the abdomen and the under tail-coverts rich scarlet; shoulders and a broad mark on the rump beautiful silvery green. Primaries and tail-feathers black; some of the former have a small white spot near their bases. Bill black; tarsi and toes fleshy brown. Total length 7 inches; wing $4\frac{1}{4}$, tail $1\frac{1}{2}$, tarsus 2, bill $1\frac{1}{8}$.”

The illustration has been taken from a male in my collection*, captured at Kordo, Mysore, March 18, 1873, and sent to England by Dr. Meyer.

The village of Kordo, to which this Pitta belongs, is so interesting, that I propose, in a future continuation of this article, to add a woodcut of it, with a description.

* All the birds mentioned in this work as being in my collection will be preserved for future reference.

[TO BE CONTINUED.]

pt. 7, vol. 1879

THE BIRDS
OF
MONGOLIA, THE TANGUT COUNTRY,
AND THE
SOLITUDES OF NORTHERN TIBET.

BY LIEUT.-COL. N. PRJEVALSKY.

[Continued from p. 204.]

PASSERES (*continued*).

118. *ORIOLOUS CHINENSIS*, L. *Ivolga kitayskaya*.

Oriolus chinensis, Gray, Gen. of B. i. pl. lviii.

During the whole time of my stay in South-eastern Asia, I only once met with *Oriolus chinensis*, in June 1873, in the garden of the Prince of Alashan, situated in the town of Din-nan-in. It was singing enchantingly, on the top of a tree; but we did not succeed in killing a specimen, and we never met with it again. It is just possible that it had its mate and nest in the adjoining park, belonging to the Prince, where we had not been; at all events this bird visits Mongolia from China very rarely, and then only accidentally. In Ussuri country, however, it is common, particularly so in the larch-tree groves on the islands and shores of rivers. Its song is louder than that of the European Oriole. It makes its appearance at Lake Hanka in the middle of May. The young leave their nests in July, and keep in small flocks together with the old birds till the end of August, about which time their autumnal migration commences.

119. ERYTHROSTERNA LEUCURA, Gmel.

This representative of the European *E. parva* is tolerably common in the wooded and bush-covered mountains of S.E. Mongolia. We found it in the valley of the Yellow River, migrating about the middle of May; but in Kan-su we did not find either the present or the following species.

120. HEMICHELIDON SIBIRICA, Gmel.

Hemichelidon fuliginosa, Hodgs.; Henderson & Hume, Lahore to Yarkand, pl. iv.

Is of occasional occurrence in Mongolia, and most likely breeds in similar localities as *Erythrosterna leucura*. During the autumnal migration we once observed it in Northern Ala-shan.

121. AMPELIS GARRULA, L. *Sverestel hohlushka*.

Each spring we observed it in S.E. Mongolia. On the 21st of March, 1871, I met with a flock at Lake Dalai-nor; and in the following year my companion came across some of these birds in the Suma-had mountains. Both times the birds were doubtless migrating northwards. In Ussuri country they are tolerably common in autumn, especially on the shores of the Japanese Sea; but at Lake Hanka we only once noticed a migrating flock.

122. COLLYRIO SPHENOCERCUS, Cab.

This species, so closely allied to *C. homeyeri*, differs from it, as has been stated by Cabanis (Journ. f. Orn. xxi. 1873, p. 76), in having the longer and strongly graduated tail and the outer tail-feathers with a white shaft; but the rump and upper tail-coverts are of the same ashy grey colour as the back. In all other respects the two agree with each other; and in the same way as *C. homeyeri* is represented in Europe and Western Asia by the form *C. excubitor*, it is represented in the east of Asia by the present species.

Measurements :—

	Length.	Wing.	Tail.	Culmen.	Gape.	Tarsus.
	in.	in.	in.	in.	in.	in.
♂. Ussuri . . .	11·9	4·8	5·45	0·72	1·18	1·17
♀. S.E. Mongolia	10·3	4·65	5·02	0·7	1·08	1·1

A scarce species in S.E. Mongolia ; it was observed there only during migration in the end of March and beginning of April. In Ordos it appears to breed ; but in Kan-su and Halha we at times met with these birds, during migration, in August and September, but did not obtain any specimens. In Ussuri country it has been seen only on the shores of the Japanese Sea, during the autumnal migration. In my book, I made at the time a memorandum that its note resembles that of *Falco tinnunculus*.

123. COLLYRIO PALLIDIROSTRIS, Cass. *Sorokopoot bledno-cluvoy*.

A young female, obtained by us in Ala-shan, differs from Cabanis's description (Journ. f. Orn. 1854, p. 146), and Heuglin's (Orn. N.O.-Afrika's, i. p. 482) by its larger size, and having the shaft of the first quill white and the first and second quills white. From Turkestan specimens of the same age it differs only by having the shaft of the first quill white. I am sorry to say that in the Museum of the Academy of Sciences there are no African specimens for comparison.

Measurements from the skin—length 10", wing 4"·36, tail 4"·13, culmen 0"·68, gape 0"·97, tarsus 1"·12.

The bill is pale brown, legs lead-colour.

The present species was observed in Ordos and Ala-shan, where it principally inhabits the sagsaulnics.

124. COLLYRIO TEPHRONOTUS, Vig.

We found it only in the wooded plains of Kan-su, and on one or two

occasions in the alpine bush-region; altogether it is a scarce bird. On the 21st of May I found a nest in a thick stunted fir, about seven feet high from the ground, at the shore of the river Pelung. The exterior of the nest was made of moss; and the interior was lined with fibres and grass-roots. The bird had just commenced laying; and the only egg in the nest I unfortunately broke. It was of a dirty white colour, with brown spots, which were thickest at the large end.

Measurements :—

	Length.	Width.	Wing.		Culmen.		Tarsus.	Tail.
	in.	in.	in.	in.	in.	in.	in.	in.
♂ . .	9.95	11	3.96-4		4.42-4.7		0.65	1.06
♀ . .	9.5	?	3.9		4.51		0.57	1.03

125. LANIUS PHŒNICURUS, Pall.

Otomela cristata, Schalow, Cab. Journ. f. Orn. 1875, p. 130.

Was observed throughout our travels, with the exception of Koko-nor, Tsaidam, and Northern Tibet. In those localities which we visited in winter, or early in spring, we found it most numerous in the Hoang-ho valley. In Ala-shan they breed in the sagsaulnics; and in Kan-su they generally inhabit the low wooded plains. The first migrants were seen to arrive in the Hoang-ho valley on the 28th of April. It breeds commonly in the woods of Ussuri country, especially in those localities where there are many decayed or felled trees.

126. LANIUS ARENARIUS, Blyth.

Lanius arenarius, Henderson & Hume, Lahore to Yarkand, pl. iii.

Breeds in Ordos and Ala-shan, and is rather numerous in the Hoang-ho valley; still not so abundant as the preceding species. We did not come

across it in China proper, and consequently suppose that the Ordos mountains form its eastern boundary, whither it goes from Persia and Afghanistan.

Measurements—length 7"·3, wing 3"·7, tail 3"·4, culmen 0"·5, tarsus 0"·8.

127. GARRULUS BRANDTII, Eversm. *Soyka Brandta.*

Garrulus brandti, Eversm. Ibis, 1867, pl. iii.

This eastern form of our common Jay was obtained by us in the woods of the Kan-su mountains. In its habits and voice it completely corresponds with *G. glandarius*. Specimens killed in August were moulting rapidly. About Lake Hanka it is rare, but rather common on the coasts of the Japanese Sea, especially in autumn.

128. PODOCES HENDERSONI, Hume. *Soyka sacsaulnaya.*

Podoces hendersoni, Henderson & Hume, Lahore to Yarkand, pl. xxii.

This interesting bird was discovered in 1850, in Western Tibet, by Forsyth's expedition, and described by Mr. Hume. A year later on, we met with it at its eastern boundary of distribution. From Ordos and Ala-shan *P. hendersoni* occurs down to the Kan-su mountains; avoiding these, it settles at Tsaidam, but has not been observed on the high plains of Northern Tibet. In Gobi, between Ala-shan and Urgey, we repeatedly saw it on our way, and therefore consider that its distribution extends to 45° N. lat. It inhabits exclusively the wildest and most desolate parts of the desert, where only a few sacsaulnics grow. Here it lives, in small flocks of from five to seven individuals, usually running about on the ground, and is so swift a runner, that a wounded bird cannot be caught by a man. When running, it keeps its head and tail in a horizontal position and wabbles considerably from one side to the other. The Mongols call it "Holo-goro."

Although *P. hendersoni* prefers keeping to the ground, still it often sits on the dry branches of the sacsaulnics, wagging its tail like a Chat. When on the wing it very much resembles a Hoopoe; and, like that

bird, it never flies far, and always close to the ground. Its cry consists of a short but rather loud chatter; and occasionally it utters a peculiar note, something like "*jin, jin, jin*," very much resembling that of a species of Marionas of the Ala-shan mountains. In the stomachs of these birds we invariably, even in October and November, found insects and their larvæ; and Dr. Hume states that it also feeds upon seeds. It is a lively, restless, and very inquisitive bird; when it perceives a man it utters its note several times, runs for a little distance, suddenly stops short, and then commences to run again. Our setter, more particularly, seemed greatly to attract attention, and was often followed for several hundred yards.

Measurements:—

	♂. in.	♀. in.
Length	11·6	10·7
Width	17·5	16
Wing	5·5	5·3
Tail	4·23	4·08
Gape	1·8	1·52
Tarsus	1·67	1·5
Middle toe	0·75	0·77
its claw	0·45	0·32
Hind toe	0·45	0·38
its claw	0·42	0·37

129. *PODOCES HUMILIS*, Hume.

Podoces humilis, Henderson & Hume, Lahore to Yarkand, pl. xxiii.

Was also discovered by Forsyth's expedition to Yarkand. We found it first in Kan-su, and afterwards in Northern Tibet and at Koko-nor. They inhabit the grassy steppes and open plains in the mountains, avoiding very carefully the wooded districts, but are not afraid of man, and very often live close to human habitations, preferring, however, those localities where the nomads pasture their herds. In the mountain-plains it

breeds in the clefts on the ground; and in the open steppes it constructs its nest in the old holes dug out by a species of *Lagomys*, and probably passes the night in similar places. We did not succeed in finding any nests, but met with the fledged young ones for the first time on the 21st of June. In spring it usually keeps in pairs, but at all other seasons in small companies of from four to six specimens, probably in broods. They are almost continually on the ground; and they run very fast, often stooping down like the Chats, especially in spring, when the male and female are together. Their most characteristic habit consists in incessantly digging the ground with their beaks; this they do when walking, running, and always after alighting on a fresh-chosen locality. This is probably the manner in which they search for insects, which were the only things that we found in their stomachs. They never fly long distances, but usually close to the ground, uttering at intervals a squeaking note. They are very tame; and it several times happened that, when a bird was shot, the remainder of the flock would not fly away, but hopped about the dead one.

Measurements:—

	♂. in.	♀. in.
Length	7	6·7
Width	10·5	10·3
Wing	3·57	3·3
Tail	2·62	2·25
Gape	1·04	0·91
Tarsus	1·1	1·07
Middle toe	0·57	0·58
its claw	0·32	0·29
Hind toe	0·37	0·36
its claw	0·35	0·34

Eyes brown; culmen and legs black: in the young the culmen is yellowish green at the base, to about half its length, legs blackish brown.

130. *PICA MEDIA*, Blyth.

Does not occur in the desert of Gobi. From Kiachta to Urgey, and about fifty versts further, on the Kalgan road, we met with *P. leucoptera* very frequently; afterwards it disappeared throughout the Gobi desert, making its appearance in the Zahar country with the present species (*P. media*).

Undoubtedly *P. media* and *P. leucoptera* are very close to the European Magpie, and do not differ from it either in their habits or voice.

P. media is extremely common in the wooded parts of S.E. Mongolia, and by no means scarce in the Hoang-ho valley; but in Ala-shan it inhabits only the wooded mountain-chains, and the neighbourhood of Din-un-in. In Kan-su it seems to be replaced by the succeeding species.

When we were staying at Muni-ul we often saw these Magpies leaving the mountains for the sandy plains, where they occupy themselves, in company with Kites, catching lizards.

131. *PICA BOTTANENSIS*, Delles. *Soroka butanskaya*.

Pica bottanensis, Gould, Birds of Asia, part xv. pl.

Inhabits Tsaidam and Kan-su (in the latter locality usually in company with the succeeding species), in the wooded mountain-parts, sometimes ascending to the alpine regions. We did not find it in Northern Tibet or Koko-nor.

Measurements of the male—length 20", width 27", wing 10", tail (central feathers) 11", gape 1"·82, tarsus 2"·12.

132. *CYANOPOLIUS CYANUS*, Pall. *Soroka golubaya*.

Cyanopoliuss cyanus, Temm. & Schleg. Faun. Japon. pl. xlii.

In the Guchin-gurb mountains of S.E. Mongolia we met with this species, but did not find it either in the Ala-shan or in the Hoang-ho valley, although it is very abundant in Kan-su, where it usually keeps in the

wooded districts near brooks or rivers. It avoids the habitations of man, and is a true forest bird. Here it can be seen for whole days, searching in the bushes for berries, on which it principally feeds during the summer. Its note resembles somewhat the following words—" *bag, jin, jin, jin* "—repeated several times in succession. The young birds especially are very noisy.

It is abundant in Ussuri country and on the coasts of the Japanese Sea, where it is usually seen in the thick bushes, on the shores and islands of the rivers.

It is very remarkable that, whenever we met with these birds, I found some specimens of *Gecinus canus* in their company, which followed the Magpies everywhere.

I took a nest of the present species in June, at Lefa, and was greatly surprised to find it constructed in a very narrow hollow of a tree, where the bird could not sit on the eggs otherwise than with its tail erect. The eggs (eight in number) were strongly incubated; and the female was sitting on them at the time of my finding the nest. Probably the construction of the nest in a hollow tree was only a singular case, as, some time afterwards, I found another nest (with young) in the branches of a willow. Both nests were thickly lined with the hair of the reindeer, which, according to the statements of the natives, these birds sometimes pick out from the back of the animal*.

* [With this translation it would be useful to read "Travels in China," by Père Armand David, 'Nouvelles Archives du Muséum d'Histoire Naturelle de Paris.' Cf. Mr. P. L. Sclater's article in 'Ibis,' 1874, 3rd ser. vol. iv. p. 167; also 'Ibis' notice of third Journey, 4th ser. vol. i. no. 1, Jan. 1877, p. 117.—EDITOR OF O. M.]

PART VIII.

“Hillo, ho, ho, boy! come, bird, come!”

Hamlet, Act i. sc. 5.

pl. 8, May 1877

THE BIRDS
OF
MONGOLIA, THE TANGUT COUNTRY,
AND THE
SOLITUDES OF NORTHERN TIBET.

BY LIEUT.-COL. N. PRJEVALSKY.

[Continued from p. 279.]

PASSERES (*continued*).

133. CORVUS CORAX, L. *Voron obiknovennoy*.

Common in all the countries visited by us. In the desert of Gobi the Ravens follow every caravan, and are so greedy that they not only steal from the tents every thing eatable, but even tear the skins from the tea-chests, or sit on the backs of the camels and peck at the wounds and sore places, if there happen to be any. The stupid animal only howls and spits at the bird, and cannot get rid of its tormentor without the assistance of man. In the Mongolian towns and villages they act, together with dogs, as scavengers, picking up all the offal, and also indulge themselves on the bodies of the dead Mongols outside the towns, in the fields, where they are thrown out.

In Mongolia and Tibet it commences to breed very early, constructing its nest on trees or, when these are scarce, on rocks and cliffs. As early as the middle of April we met with some good-sized young ones, although in the beginning of the same month we only saw eggs, which appeared to

me to be larger than the European ones, measuring in their longer diameter 2''·06 and in their shorter diameter 1''·42.

On comparing our Mongolian and Northern-Tibet specimens with European birds, we find that the former are rather larger.

Measurements :—

	Length.	Width.	Wing.	Tail.	Culmen.	Tarsus.
	in.	in.	in.	in.	in.	in.
♂. N. Tibet . .	27	54	19·6	11·7	3·2	?
♂. Tsaidam . .	25·5	51	18·3	10·5	3	?
♀. Koko-nor . .	24·5	50	19	10·4	3	2·56

134. *CORVUS ORIENTALIS*, Eversm. *Vorona chernaya*.

Differs from *C. corone* by its larger size and more rounded tail. We met with it throughout Mongolia and Kan-su, and once at Koko-nor, but did not find it at all in Tsaidam and Northern Tibet. Contrary to the habits of the Raven, it never ventures into the desert of Gobi, and is common in Ala-shan and about the city of Din-un-in.

Père David met with *C. sinensis*, Gould; but as we have not got any specimens ourselves, I do not name it in my list of Mongolian birds.

Measurements of a male from Koko-nor—length 20'', width 39'', wing 13''·8, tail 8''·1, tarsus 2''·32, gape 2''·4, thickness of the bill at the base 0''·8.

In Ussuri country it is very common, especially about settlements and villages, but is also abundant in the forests. Many leave this district for the winter, probably for the southern parts of Manchuria and Corea; and those which remain for the winter keep usually near the habitations of man.

135. *FRUGILEGUS PASTINATOR*, Gould. *Gratch*.

Is extremely common in S.E. Mongolia during migration, but very seldom remains there to breed; in Ala-shan and the Hoang-ho valley it is

scarce. It usually frequents fields, and does not differ from the European Rook in its habits. About Lake Hanka we several times saw this bird; it would seem that it arrives there about the middle of March, and breeds in the Sungach marshes in limited numbers

136. *LYCOS DAURICUS*, Pall. *Galka daurskaya*.

Rare during winter in Urgey, and breeds erratically in S.E. Mongolia, only being common during migration, about March. We observed it in Ala-shan only in the vicinity of Din-un-in, but found it generally distributed throughout Kan-su, on the lower plains. In its voice and habits it does not differ from the European Jackdaw.

The Daurian Jackdaw breeds abundantly about Lake Hanka, in clefts or hollow trees, arriving thither in March, and leaving in October. It is very remarkable that as soon as the young are fledged these Jackdaws leave Lake Hanka in great numbers, probably for the more fertile localities of Manchuria and Corea.

137. *PYRRHOCORAX ALPINUS*, Vieill. *Clushitza alpeyskaya*.

Was met with by us only in the alpine regions of the Kan-su mountains, where it usually keeps in flocks, which are at times very large. Occasionally they descend to the lower plains in search of food, but always return again to their native rocks. Some of our specimens, shot in August, were moulting very fast. The Kan-su mountains form its northern, and probably its eastern boundary.

138. *FREGILUS GRACULUS*, L. *Clushitza grion*.

The Mongolian and Chinese specimens differ from the European ones by their shorter tarsus and toes; the latter are also thicker. In consideration of this, Mr. Swinhoe (Proc. Zool. Soc. Lond. 1871, p. 383) has named this

bird "var. *brachypus*;" but the species inhabiting Northern Tibet is probably the same as the Himalayan one, which does not differ from the European in the tarsus, but is larger in size.

Measurements :—

	Length.	Width.	Wing.	Tail.	Gape.	Tarsus.	Middle toe.
	in.	in.	in.	in.	in.	in.	in.
♂. Urgey . .	15	28	12.3	6.5	2.1	1.76	0.9
♀. Urgey . .	13.5	26	11.8	6.2	1.97	1.66	0.78
♀. N. Tibet .	17.3	33	13	6.5	2.26	2.2	1.02

Fregilus graculus is very common throughout Mongolia, Kan-su, and North Tibet, with the exception of the wildest deserts. It breeds in Mongolia, on the rocks and cliffs of the mountains, and in holes in earthbanks. In Urgey a pair had a nest on the house of the Russian Embassy. The eggs (three or four in number) are similar to those of our European birds; large diameter 1".64, small diameter 1".08. They sit very closely, and on several occasions left the nest only when we had half dug it out. These nests are often situated in 3–6-foot-deep holes in earthbanks, and are constructed of hair only. The nidification commences very early; and in the beginning of April strongly incubated eggs were taken by us.

They usually keep in small or large flocks. In Tibet we several times saw flocks of from six hundred to one thousand specimens, which left the mountains for feeding during the day, but always returned for their night's roost to the rocks. Occasionally these flocks rise very high in the air; and, in order to estimate the altitude, I may mention that the plain from which we made our observations was situated up to 14,000 feet above the sea-level.

It is scarce in Zabaikalje, and does not go north of that place.

139. TEMENUCHUS DAURICUS, Pall.

This common Chinese bird was only once observed by us in S.E. Mon-

golia—namely, in the Suma-had mountains, in a small flock, probably consisting of one brood only. On the wooded river-shores and islands of Ussuri it breeds abundantly in hollow trees. The eggs are of a beautiful blue colour, and usually five in a nest, which the young leave about the 10th of June at Lake Hanka; and then they can easily be detected by their constant chattering. A very strange circumstance is the disappearance of this bird in Ussuri country from about the middle of July, after which time I never met with a single specimen. This was also remarked by Maack.

140. STURNUS VULGARIS, L. *Sevoretz obicnovennyoy.*

During all our travels, once only did we meet with Starlings, and that at Koko-nor, in October 1872, one of which was killed and preserved. It must have been a pair that accidentally came so far, as it does not occur even in China.

141. STURNUS CINERACEUS, Temm.

Sturnus cineraceus, Temm. Pl. Col. pl. dlvi.

A few migrating specimens were observed in April at the Shura-had mountains of Eastern Mongolia. It is tolerably abundant in Ussuri country, especially about Lake Hanka, arriving there in spring, in the middle of March, but principally during the month of April. It breeds in hollow trees. The young (usually five in a brood) leave their nests in the beginning of June, form large flocks, and keep together till the end of July, when they suddenly disappear from Ussuri country, as well as Lake Hanka.

142. FRINGILLA MONTIFRINGILLA, L. *Vursk nastoyaschey.*

A winter visitant to North China; found by us in Mongolia during migration, which took place in the end of March. In the other countries traversed

by us we found it very common, and also at Lake Baikal. The probability is that they migrate mostly along the eastern boundary of Gobi.

At Lake Hanka we noticed it only during the spring migration, commencing from the end of March or the beginning of April, apparently not remaining to breed there, although Maack found them breeding in Ussuri country.

143. *CHLOROSPIZA SINICA*, L.

Fringilla kawarahiba minor, Temm. & Schleg. Faun. Jap. pl. xlix.

Although this species is common in China, Japan, and at the Amur, we met with it in Mongolia only at Lake Dalai-nor, and once only in the Ural country. It does not occur either in Ala-shan or at Muni-ul. It is tolerably abundant at Kan-su, in the lower mountain-plains, especially so near fields. Specimens killed in August were moulting very fast.

144. *PYRGITA PETRONIA*, L. *Vorobey kamennoy*.

Mongolian specimens differ from the European ones by a slight coloration and a shorter bill. This latter peculiarity, however, is very inconstant in the present species; and specimens from the Caspian, now in the Academy of Sciences, have intermediate bills between East-Asiatic and European birds.

It is somewhat common in the mountain-plains of Mongolia, and breeds in earthbanks and cracks in the ground. In the former case the nest is constructed in rather a shallow hole, so that the eggs or young (from four to six in number) can be seen from the entrance. The young birds leave their nests in the end of May; and in winter they associate in flocks of several hundreds. We saw similar flocks at Muni-ul.

It is generally distributed throughout Kan-su, is rather scarce at Koko-nor, and occurs only occasionally in Northern Tibet, about Halha. However, it is again common on the small hills of Gobi.

145. *MONTIFRINGILLA ADAMSI*, Moore.

Gould, Birds of Asia, part xix. pl.

This species finds its limit of geographical distribution at Kan-su, where we met with it for the first time. It inhabits the woodless mountain-plains and hilly cultivated localities, where it probably breeds in the ravines. After August we did not meet with any of these birds in Kan-su, but saw a winter flock, consisting of about two hundred, in Northern Tibet, in December; at that time the specimens killed by me had a yellow bill, as represented in Gould's figure, but were rather lighter in their general plumage. The voice of *M. adamsi* resembles very much that of our common House-Sparrow.

146. *FRINGILLAUDA NEMORICOLA*, Hodgs.

Bonaparte, Monographie des Loxiens, pl. xlvii.

We found this bird only in the Kan-su mountains, which form its northern limit of distribution. It inhabits exclusively the alpine region; and after the young leave the nest, they associate in large flocks of several hundreds. Many such were observed by us on the meadows and slopes of the highest mountains. When in search of food, they keep constantly flying from one place to another, uttering their squeaking note. On the ground they disperse, but in the air form a very dense mass.

Notwithstanding the heavy snowfalls in the alpine region, these birds were found by us there until the middle of September; but in spring they did not arrive until after April.

ONYCHOSPIZA, nov. gen.

Rostrum subconicum, apice subarcuatum; nares basales, rotundatae, plumulis tectae; pedes et digiti breves; ungues longi, arcuati, acuti et compressi; alae longae, subacutae, remigibus 2°, 3°, 4° subaequalibus longissimis; cauda mediocris, apice rotundata; tectrices caudae superiores et inferiores longae, longitudine aequales.

147. *ONYCHOSPIZA TACZANOWSKII*, n. sp. (Plate LIV. III. fig. 1.)

Supra grisea, subtus sordide alba; dorso fusco striato; fronte, superciliis uropygioque albis; loris nigris; alis fuscis, remige secundo pogonio toto externo albo, cæteris albido marginatis et in pogonio interno macula magna alba notatis, secundariis albo terminatis, tectricibus albido limbatis; cauda rotundata, nigra, rectricibus latissime albo terminatis, mediis vero brunneis et pallide marginatis; rostro plumbeo, apice nigricante; pedibus nigris.

Measurements :—

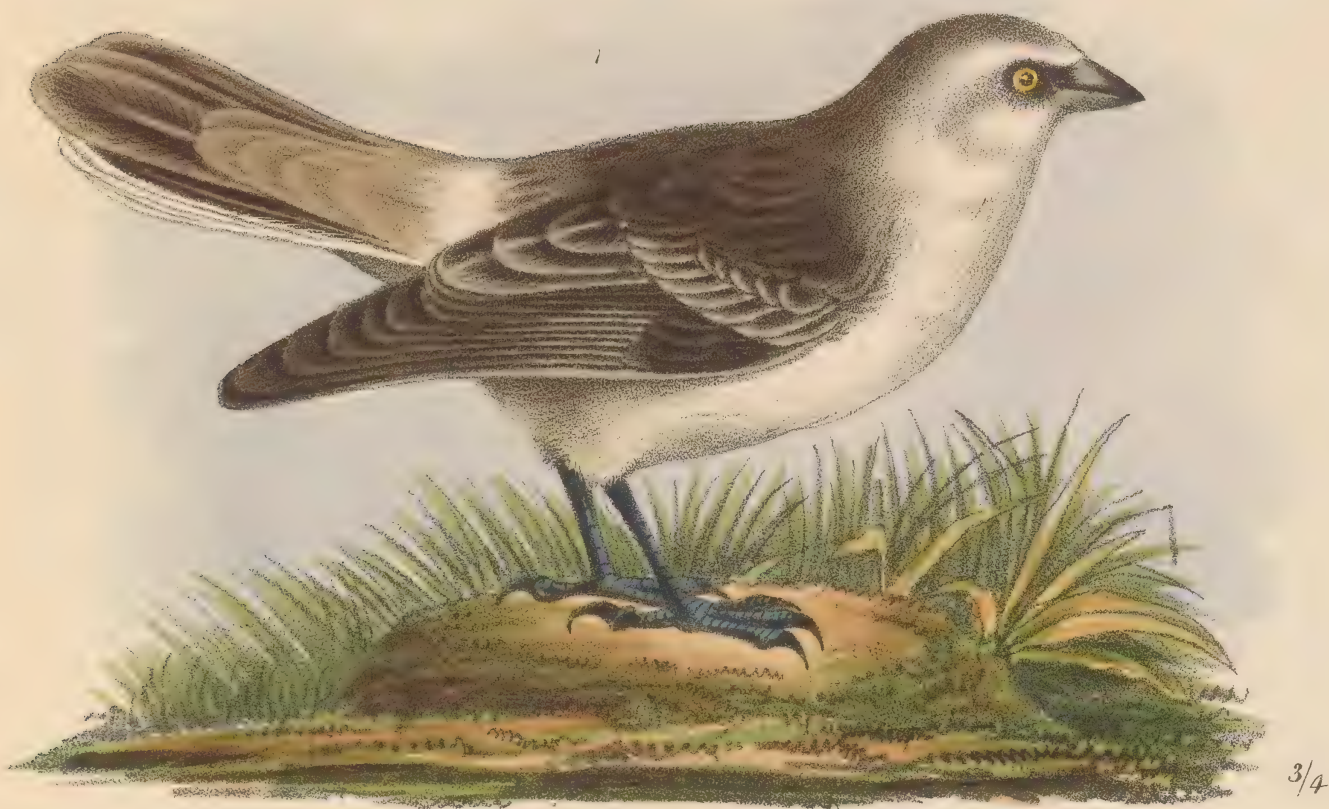
	Length.		Width.		Wing.		Tail.		Gape.	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
♂. .	7.1	7.2	11.7	12	4.03	4.1	2.7	2.88	0.57	0.59
♀. .	6.8	7.1	11.7	12	3.95	4.15	2.7	2.78	0.55	0.6

	Tarsus.		Middle toe,		its claw.		Hind toe,		its claw.	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
♂. .	0.88	0.94	0.48	0.51	0.28	0.36	0.24	0.28	0.26	0.28
♀. .	0.87	0.92	0.49	0.51	0.28	0.36	0.25	0.28	0.28	0.31

Quills—1st twice as short as its coverts; 3rd = 4th longest; 2nd only slightly shorter, but longer than the 5th; sometimes 3rd=4th; 3rd, 4th, and 5th quills are somewhat cut-in at the top of the inner web. In the rounded tail the outer feathers are 0".4 shorter than the central ones. Culmen lead-coloured, tipped with black. The young (?) in autumn have yellowish-green spots on the bill; tarsus, toes, and claws black; iris light brown*.

Male (in autumn).—Forehead, eyebrows, cheeks, sides of the neck, and the underparts generally dirty white; throat, centre of stomach, and rump pure white. Lores black; an indistinct line leading from the latter, under the eyes, dark reddish brown; ear-coverts and hind portion of neck brownish grey. Crown and nape light reddish brown. The feathers of the back have dirty-white outer and dark brown inner webs, by which some longitudinal

* [In the original there is a woodcut inserted here, of the wing, tail, beak, and claw.—EDITOR OF O. M.]



1. ONYCHOSPIZA TACZANOWSKII, PRZEW.
2. MONTIFRINCILLA (PYRCILAUDA) RUFICOLLIS, BLANF.

spots are formed. Wings blackish; quills edged with white or yellow, the secondaries having also a white tip and a white spot at the base of the inner webs; on the primaries the white spot at the base diminishes towards the edge of the wing by degrees, and is hardly perceptible on the second quill, the outer web of which is quite white, with the exception of its point; the first short quill is white. The upper wing-coverts dark brown, with wide white edges, with the exception of the largest, which are quite black. Under wing-coverts white. The two central tail-feathers are dark reddish brown, with wide yellowish edges; the others are black, with a broad white band on the ends, which becomes narrower towards the centre and is hardly perceivable on the fifth tail-feather. Upper tail-coverts light brown. Under tail-coverts dirty white. Towards the spring the feathers rub very much, and fade away a great deal—so much so, that the edges of the quills and the upper tail-coverts become quite white.

The female does not differ from the male bird in plumage.

I have called this species after an ornithologist, Mr. W. H. Taczanowski, of the Warsaw Museum.

We met with this bird for the first time at the sources of the river Tetunga, and found it very abundantly distributed in the Koko-nor steppes and in Northern Tibet, avoiding the Tsaidam country. In its habits it reminds one of the Chats, runs about very quickly, perches on stones or small heaps, constantly bowing and vibrating its wings.

The holes of a species of *Lagomys*, which is extremely numerous in the Koko-nor steppes, serve these birds as an abode for the night, and probably also for building their nests. In some instances the bird also digs its own hole, at which work my companion once saw it. They often live in small companies, but never form large flocks.

The drumming of these birds is very remarkable. It commences in the early part of May. The male puts its wings down, blows up the feathers of the neck, bends its head downwards, and keeps running round the female; then it flies aside for about fifty yards, and throws itself down on the ground where the female is sitting. During the quick movement downwards, the wings make a peculiar shivering noise; and whilst the male approaches a few inches above the head of the female, she bends her head towards the ground, and vibrates her wings. This manœuvre often lasts for ten minutes, the male rising at intervals and singing his simple but not unpleasant note. He is very cheerful, and sings even in severe cold.

During the breeding-season the cocks fight very much, jumping against each other, something like the common Barn-door Fowl. Whilst visiting Koko-nor, in the month of March, these birds were just constructing their nests; but we did not notice them breeding at that time.

The sources of Tetung-gol and the Koko-nor basin form the northern boundary of its geographical distribution.

148. *PYRGILAUDA DAVIDIANA*, J. Verr.

Nouv. Arch. du Mus. vii. 1871, pl. i.

These birds belong exclusively to the Mongolian highlands, and even here inhabit only the northern and south-eastern borders of Gobi, where the desert commences to attain the character of a steppe. We obtained specimens in the vicinity of Urgey, and between Dolai-nor and the northern bend.

The voice of *P. davidiana* resembles that of *Pyrgita petronia*. The flight is wavering; it runs very fast, and, when sitting, often vibrates its wings, just like a Chat. It principally inhabits the hilly steppes and valleys, and avoids low mountains, forming in winter small flocks about fifty in number. But early in spring (about March) they disperse in

pairs; and at that time the male can almost always be seen either running or flying after the female.

The nest is constructed on the ground, in holes about three or four feet deep, the empty holes of *Lagomys ogotono* being at times used for that purpose, the birds digging them out themselves—in which case they are narrower, not deeper than from two to three feet, and not straight but curved. The bottom of the hole is wide; and here the white eggs with a yellow tint, usually six or seven in number, lie on a lining of dry grass, hair, and down, measuring 0".77–0".84 and 0".53–0".59 respectively.

In the Shara-had we found, on the 20th of May, several nests of this species. Most of the eggs were incubated, and some already hatched. On the 12th of the same month one of my companions took a nest with quite fresh eggs; and on the 7th of June we, for the first time, met with fledged young.

The northern limit of its distribution is about Urgey—*i. e.* where Mongolia attains a mountainous aspect. The southern, and perhaps also the eastern boundary is formed by the northern bend of the Khanghor.

149. PYRGILAUDA RUFICOLLIS, Blanf. (Plate LIV. III. fig. 2.)

This species has been described by Blanford in the 'Proceedings' of the Asiatic Society of Bengal (1871, p. 227), and was placed under the generic name of *Montifringilla*; but since J. Verreaux has lately established the new genus *Pyrgilauda*, this bird must be referred to the same. Its measurements are—length 6"—6".2, width 10".5–10".7, wing 3".57–3".8, tail 2".12–2".5, tarsus 8".3–8".5, gape 0".5–0".53. The female does not differ from the male in colour and size. In its habits it is similar to the preceding species, and has the same wavy flight, quick running, and shivering of wings when sitting quietly. The voice, however, is different, and somewhat resembles that of our Tree-Sparrow.

We met with *P. ruficollis*, simultaneously with *Onychospiza taczanowskii*, at the sources of the river Tetung and in the Koko-nor basin, whence it visits Northern Tibet, avoiding, however, the marshy plains of Tsaidam. Like the two preceding species, it inhabits the empty holes of *Lagomys ogotono*, which cover the Koko-nor steppes in great numbers, especially in the localities where the Mongols and Tanguts* have been stopping for some time. These birds live very peacefully in company with the above-mentioned animals, and form in winter large flocks of several hundreds; but in spring they separate in pairs, and breed in the above-mentioned holes in the ground. No nests were found by us in March.

The northern limit for the distribution of this species is formed by the Koko-nor basin and the river Tetung.

150. PASSER MONTANUS, L. *Vorobey polevoy*.

Is a scarce inhabitant of Gobi, but is rather common in S.E. Mongolia, Ordos, and Kan-su, near the Chinese habitations, and at Koko-nor and in Tsaidam about the villages. In Ala-shan it inhabits the deserts, usually near wells and Mongolian huts, but does not occur in Northern Tibet. It breeds on rocks, in holes on the ground, or in houses and fences left by the Mongolian nomads.

P. montanus is extremely common in Ussuri country and on the coast of the Japanese Sea, but also there only in the neighbourhood of the habitation of man. Sometimes they stop for a year or two in the villages left by the Chinese, but after that period always leave these spots, in order to get to

* ["Tangut (*Tangkút*) is a name very conspicuous in the Mongol era. The word ('Tanggod') is properly a Mongol plural, designating certain tribes of Thibetan blood, called by the Chinese 'Tanghiang,' who established their kingdom on the N.W. frontier of China . . . (end of 10th century). The name is no longer used in China; the Mongols now apply it to Tibet. In this sense it is often used by Pallas &c." For fuller information cf. Col. Henry Yules, 'Marco Polo,' vol. i. p. 186.—EDITOR OF O. M.]

some other places inhabited by men. According to the statements of the peasants and Cossacks, these Sparrows have greatly increased in numbers on the Ussuri since the settlement of our people increased.

151. PASSER AMMODENDRI, Sev. *Vorobey sacsaulney*.

This Sparrow, which, a few years ago, M. Severtzoff discovered in Turkestan, was found by us on its eastern limit of distribution—*i. e.* in Alashan and Ordos. Unlike its congeners, the present species avoids human habitations, and inhabits exclusively the deserts, especially the “sacsaulnic” thickets, on the seeds of which it principally feeds, as we usually (and even in spring) found these seeds in the crops of birds killed by us.

P. ammodendri is very cautious, and does not often allow one to get within gun-range. Its flight is quick, and sometimes very high up in the air. The voice is similar to that of *Passer domesticus*, only somewhat shriller. It breeds on the sacsaulnic trees, and mostly in the old nests of Kites, and seldom makes its own, which latter is of a large cylinder-shape, about two feet long and about one foot wide at the bottom; but at the top it gets narrower, measuring only about half a foot. The outer structure consists of *Agriophyllum gobicum* and “sacsaulnic” branches; but the interior is built of camels’ hair, and lined with feathers of *Grus virgo*.

In the nests of Kites, even when they are occupied by the owners, these Sparrows build in the dry sticks which form the outer structure, and line them with camels’ hair, but always make them cylindrical in shape.

Occasionally they also breed in destroyed huts, or even in the walls of wells.

The number of eggs varies from three to five. They are white, or white with a brown shade, and spotted with reddish brown, the latter being more intense on the thick end. Large diameter 0"·81–0"·92, small diameter 0"·57–0"·63. (Plate xx. figs. 8, *a*, *b*.)

The young of the early broods get fledged in the first part of June. They sometimes form large flocks in autumn, but usually keep in pairs or families.

The geographical distribution of this species is very much dependent upon the occurrence of the "sacsaulnic;" but although the latter is plentiful in Tsaidam, the bird does not occur there; and it seems to us that the southern limit for the distribution of this Sparrow, in the localities we visited, is formed by the Southern Ala-shan, or, rather, the Kan-su mountains; the northern one is formed by the Hurha mountains, in Gobi; eastwards, its range does not extend beyond Ordos.

On comparing Ala-shan specimens with those obtained in Turkestan, I find that the former have light reddish-brown-, and not white- or brownish-grey-edged feathers on the back, wings, and tail. Consequently the upper parts of the Ala-shan birds are of a uniform reddish-brown colour, whilst the Turkestan specimens are brownish grey.

152. MYCEROBAS CARNIPES, Hodgs.

Gould, Birds of Asia, part iii. pl.

Found in the Ala-shan mountains, Kan-su, and the South Koko-nor mountain-chain, but is not numerous in either of the three localities. In Kan-su it inhabits only those places where juniper trees are growing—*i. e.* from the middle mountain-circle up to the highest point of bush-growth. Juniper berries form its principal food, which are easily smashed by the strong bill of the bird. In Ala-shan, where juniper bushes are not very abundant, it keeps to the fir-woods, and feeds on the seeds of the cones.

This species is very lively and quick, and its flight is high and wavy. The call-note, either when the bird is on wing or sitting, resembles somewhat the following syllables—"tin-drick, tin-drick;" but from the nest the adult birds call "*briij, briij*," very much resembling *Carpodacus dubius*.

I cannot state whether *M. carnipes* leaves the localities in which we

found them for the cold season, or not; but I am inclined to believe that the former opinion is the more likely one, as early in May we observed, in Kan-su, small flocks of from five to ten individuals, which evidently were migrating, or had just arrived. They principally kept to the juniper bushes, in the middle mountain-ranges. At this time I saw these birds running for the first time on the ground.

The young males which I killed in spring still resembled the females exactly; consequently it is most likely they get their full plumage only after the second moult. In the middle of summer we obtained examples which had just commenced to get a few black feathers on the breast; these were probably a year old.

In the countries explored by us the Ala-shan mountains form the northern limit of the distribution of the present species.

153. PYRRHULA ERITHACUS, Blyth.

Pyrrhula erithacus, Blyth, Ibis, 1863, pl. x.

A short diagnosis of this pretty Bullfinch was given by Mr. Blyth in 'The Ibis,' 1862, p. 389; but the female was not described there. He received his specimen from the Himalayas. The female differs from the male by having all the underparts, with the exception of the white stomach, of a light chocolate-colour on the shoulders; but on the back this colour gets darker. The two sexes do not differ in any other respect either in plumage or in size. I must also add that only the adult has the bright orange-coloured breast; whilst the young has a yellow one, shaded with orange.

Measurements:—length 6"—6".3, width 9".3—9".7, wing 3".2; tail—outer feathers 2".76, middle ones 2".1; tarsus 0".6, gape 0".43. Iris dark brown; culmen black; tarsus body-colour.

We met with it only in Kan-su, where it principally inhabits the woods of the lower and middle mountain-ranges, and only seldom visits the alpine

regions. It is most abundant in the thickets on the sides of mountain-brooks.

The voice of the male, either when on the wing or sitting, resembles that of our common Bullfinch, but is somewhat weaker. In spring the males sing very prettily.

The present species is a quick and lively bird, which very seldom sits quietly, but usually flies from one branch to another. About the middle of May the small flocks had not yet paired.

The Kan-su mountains form the northern boundary of distribution for the present species.

154. *CARPODACUS ERYTHRINUS*, Pall. *Snigir krasney*.

Is of occasional occurrence in S.E. Mongolia, and does not occur at all in the Hoang-ho valley and at Hara-narin-ul, although it commonly breeds in Kan-su and Ala-shan, in the wooded parts of the middle and the bushes of the alpine region.

About the middle of May these birds arrived in Kan-su, in small flocks of from three to fifteen individuals, and kept mostly in the thickets of the mountain-ranges.

C. erythrinus is rather rare in Ussuri country. I once met with it at the mouth of the Ussuri, and also on the coast of the Japanese Sea—but never noticed it about Lake Hanka, not even during the vernal migration.

In comparing European specimens with East-Asiatic ones, I find that the latter are brighter-coloured on the head and the underparts, and darker on the back.

155. *CARPODACUS RUBICILLA*, Güld.

Bonap. Monog. des Loxiens, pl. xxix.

Found in November in the Tsaidam plains, where this mountain-bird



CARPODACUS RUBICILLOIDES, PRZEW ♂ ♀

most likely passes only the winter, solitary, in pairs, or even in flocks of from twenty to fifty. A male obtained by us is very light in colour, and not in accordance with Gould's description*. The Tibet birds differ from those obtained in the Caucasus.

In Northern Tibet we saw this species several times in winter; it might be, perhaps, a resident in that country. We did not observe any north of Tsaidam.

156. CARPODACUS RUBICILLOIDES, n. sp. (Plate LIV. iv.)

C. rubicillæ similis, sed minor; rostro conico; colore roseo intensiore; striis argenteis capitis et pectoris angustioribus; dorso obscure griseo, rosaceo tincto brunneoque striato.

Measurements:—

	<i>C. rubicilloides.</i>				<i>C. rubicilla</i> (Tsaidam).
	♂.		♀.		♂.
	in.	in.	in.	in.	in.
Length . . .	8	to 8·3	7	to 7·6	8·5 (from skin).
Width . . .	12	to 12·3	10	to 12	?
Wing . . .	4·07	to 4·2	3·77		4·65
Tail . . .	3·4	to 3·5	3·14		3·72
Culmen . . .	0·52	to 0·57	0·55		0·51
Gape . . .	0·62	to 0·66	0·66		0·61
Tarsus . . .	0·92		0·87		0·87
Middle toe . .	0·7		0·6		0·6
Hind toe . . .	0·32		0·31		0·31

Quills: 2=3, 1=4; in summer the 3rd is the longest, 2=4>1, and some specimens have even the 2nd quill the longest. Bill comparatively larger and more conical than in *C. rubicilla*; upper mandible dark horn-colour, lower mandible yellow. Tarsus (which is longer than in *C. rubicilla*) dark horn-

* ['Birds of Asia,' part iv.]

colour; iris brown. The general plumage of *C. rubicilla* is not so intense in colour as that of the present species.

Male.—Forehead, crown, cheeks, throat, and breast carmine-red, with small and narrow silvery streaks. Stomach (with the exception of the white centre) rose-coloured, with a vermilion tint; flanks reddish grey, with a few black streaks. Nape, back and sides of the neck, back, and shoulders brownish grey, with a red shade and black shaft-streaks. Rump dull rose-colour. Quills and tail-feathers dark brown, with red and yellow edges, which are widest on the tertiaries; the tips of the secondaries are pale yellow. Large wing-coverts have reddish-yellow, and the others have rosy-red edges; the under wing-coverts are pale brown, with rosy edges. The upper tail-coverts are brown; the under tail-coverts are rosy.

Female.—Upper parts brownish grey, lighter on the rump and with black shaft-streaks; underparts yellowish white, marked with black lines, which are narrowed on the stomach. Quills and tail-feathers dark brown, with narrow pale edges.

We met with these birds only in the Kan-su mountains (but some might have been in Tibet, although we did not obtain any), where it is only to be found in the alpine regions, and very seldom, by chance, in the woods. It usually keeps in thickets of bushes and on the ground, and is tolerably cautious. The note resembles the whistling of our common Bullfinch. The flight is high and wavy.

About the middle of July the males were still moulting; and specimens killed late in August were also moulting fast.

Towards the end of April we found these birds in the mountains south of the river Tetung. Here they were flying about, in small flocks, on the alpine meadows.



CARPODACUS DUBIUS, PRZEW. ♂ ♀.

157. *CARPODACUS DAVIDIANUS*, Milne-Edw.

Nouv. Arch. du Muséum, i. (1865) pls. ii. & iii.

This species, closely allied to *C. rhodochrous*, Vig., is tolerably common in S.E. Mongolia, Ala-shan, and Kan-su, and breeds in the alpine regions and wooded districts. Late in April we often met with them on migration through Kan-su; and in August they were observed, most likely migrating, in the Hoang-ho valley.

158. *CARPODACUS DUBIUS*, n. sp. (Plate LIV. v.)

C. thurae simillimus. Mas abdomine medio albo; genis totis roseis; vitta superciliari argentea, postice candidissima.

Fem. uropygio ochraceo, fusco striato; vitta superciliari antice ochracea, postice alba.

Measurements:—

	Length.		Width.		Wing.		Tail.		Gape.		Tarsus.	
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
♂	6·7		11·7–12		3·27–3·36		3·10–3·15		0·50–0·52		0·82–0·87	
♂	6·8–7·1		11·7–12		3·13–2·24		2·87–3·1		0·49–0·51		0·82–0·86	

The 4th quill is the longest one; 3 = 2, being very little shorter; 5 > 3; 1 < 6. Upper mandible black, lower mandible light horn-colour; tarsus same colour; iris brown.

The present species very closely resembles *C. thura*, Bp., but differs in the following respects: (a) the whole cheek is crimson, whilst the upper part of the cheek of *C. thura* is brown; (b) the centre of the stomach is dirty white, and not light crimson as is the case with *C. thura*; (c) the silvery rose-coloured eyebrows of *C. dubius* become quite white on the neck, whilst those of *C. thura* are light crimson throughout.

The female of the present species has an ochre rump and eyebrows; whilst in the figure of *C. thura*, P. Z. S. 1855, pl. cxiv., the rump is made

brown, with a reddish tint. The ochre rump is found in the female of *C. saturatus*, Blanf.; but the male is different from ours.

Male.—Crown and upper parts of the body olive-brown, every feather marked with a black shaft-streak. Cheeks, underparts, rump, the upper and under tail-coverts are crimson, lightest on the rump. The feathers of the neck are pointed, and have narrow silvery shaft-streaks. Centre of breast dirty white, sometimes with black lines along the feathers. Flanks olive-brown. Forehead and eyebrows silvery rose-colour; their continuation on the back of the neck pure white; lores dark crimson; ear-coverts do not differ in colour from the sides of the neck. Quills and tail dark brown, with yellow edges to the feathers. The large wing-coverts are marked with broad yellow edges; the rose-coloured tips of the central wing-coverts form a red band across the wing; the small wing-coverts are edged with a dirty crimson; under wing-coverts white. The front portion of the upper and under tail-coverts have narrow blackish shaft-streaks.

Female.—Above of the same colour as the male; but the rump is ochre, with blackish lines. The lower parts of the body are yellowish white, marked with blackish shaft-streaks, which are narrowest on the breast. Eyebrows ochre; their continuation towards the neck is white.

We obtained these birds in Ala-shan and Kan-su, in the wooded mountainous districts, usually on plains and in thickets on the shores of rivers, occasionally, also, in the juniper bushes, as high as the alpine regions. The song is very weak; but the call-note, which it utters on the approach of danger or otherwise, consists of an unpleasant note something like “*brijj, brijj, brijj*.”

The autumnal migration, in Ala-shan, takes place early in October, and the vernal one, in Kan-su, late in April or early in May. Towards the middle of the latter month they had already commenced building, but had no eggs yet.

The Ala-shan mountain-chain forms the northern limit for this species, as we did not meet with it in the Muni-ul mountains.

159. *ERYTHROSPIZA MONGOLICA*, Swinh.

Sev. Vert. i Gor. raspr. Turk. Jev. p. 117.

We observed these birds in Halha, Ordos, and Ala-shan ; then, although they do not occur in Kan-su, they inhabit Koko-nor and Tsaidam. Its favourite localities are high clayey hills, especially if they abound with ravines. From here the birds visit stony localities of some mountain-plains and near saltwater lakes, where they feed upon the seeds of salt plants. The note, uttered when on the wing, consists of a few short syllables, something like "*tuck, tuck, tuck.*"

Early in May 1872 I found, in the Harin-narin-ul, a nest constructed in the thick branches of a young elm tree, not above one fathom from the ground. The foundation consisted of dry branches of a mugwort, and the lining of a thick layer of goat's hair. The eggs (three in number) were quite fresh ; they are of an elongated conical shape, of a whitish green colour, and marked on the large end with a few blackish spots and lines. Large diameter 0".82-0".86, small diameter 0".54-0".58 (Pl. xx.* fig. 3). The female was already sitting very close, so that I almost caught her on the nest with my hands. The male was also near at the time ; and when the female, after leaving the nest, joined the male, they commenced caressing each other, just like Pigeons.

In Tsaidam we often met with *E. mongolica*, in November, on the clayey plains ; but they were very cautious and unsettled. The crops of specimens killed by us contained at the time some seeds.

In the localities we explored, the Hurha mountains form its northern boundary of distribution.

160. *ERYTHROSPIZA OBSOLETA*, Licht.

Bonaparte, Monographie des Loxiens, pl. xxxii.

We found these birds only in the northern bend of the Hoang-ho, the

* [This refers to a Plate of eggs in the original.—EDITOR OF O. M.]

Muni-ul, and Hara-narin-ul mountains. In its voice and flight it almost exactly resembles the preceding species, although, upon a close examination of the two sounds, one can find a slight difference, which, however, it is very difficult to describe.

E. obsoleta also keeps in small flocks on the stony parts of plains, especially at the foot of some mountains which abound with rocks and slopes. Contrary to the last species, the present one often visits the deserted Mongolian villages, and pecks about in the dirt.

I cannot state with certainty whether *E. obsoleta* stays all the year round in the localities where we found it, or whether it leaves for the winter; but it appears to me that the former is the most likely, although we did not meet with a single bird during November 1871 from Ala-shan to Kalgan, where we observed them in summer.

The Hoang-ho or, rather, the Muni-ul mountain-chain forms the northern boundary of the distribution of this species, which most likely does not extend eastwards beyond Ordos, as it has not been seen in China proper.

161. URAGUS SIBIRICUS, Pall.

Bonaparte, Monographie des Loxiens, pls. xxxiv. & xxxv.

This species came under our observation only in the Guchin-gurb hills, north of Dolan-nor, late in March and early in April, in pairs and small flocks, in the bushes overgrown with reeds and long grass.

162. PYRRHOSPIZA LONGIROSTRIS, n. sp. (Plate LIV. VI.)

P. puniceæ similis, sed major et rostro longiore. Mas fusco-griseus; fronte superciliis latissimis, genis colloque sanguineo-coccineis, argenteo aspersis; pectore et uropygio lætissime roseis, subcaudalibus roseo tinctis.

Fem. subtus cum fronte sordide albida, dense fusco striata; uropygio flavescente.



(2/3)

PYRRHOSPIZA LONGIROSTRIS, PRZEW ♂ ♀

Measurements :—

	<i>P. longirostris.</i>					<i>P. punicea.</i>
	in.	♂.	in.	in.	♀.	in.
Length	8·5	to	9		?	7·84
Width	12·5	to	14·3		?	?
Wing	4·49	to	4·88	4·5	to	4·7
Tail	3·52	to	3·7	3·47	to	3·5
Culmen	0·7	to	0·78	0·67		0·62
Gape	0·77	to	0·83	0·77		?
Tarsus	0·9	to	0·97	0·96		0·92
Middle toe	0·78			0·72		0·7
Hind toe	0·4			0·4		0·4

Quills : 2 = 3 longest; 4 > 1; in some specimens (also in summer plumage) 2 = 4. Culmen dark horn-colour; lower mandible yellow; iris dark brown; tarsus dark horn-colour.

Male.—Forehead, wide eyebrows, cheeks, and throat blood-red, with indistinct silvery spots; breast and rump crimson. Ear-coverts, crown, nape, back and sides of neck, back, and shoulders earthy-brown colour; the darker centres of the feathers form indistinct spots. Stomach dirty yellow. Flanks yellowish grey, with indistinct dark lines. Quills and tail dark brown, with hardly perceivable red edges on the outer webs; the secondaries have white tips. The upper wing-coverts do not differ from the quills in their coloration; the larger ones have pale edges, and the smaller ones have red ones. The frontal part of the upper tail-coverts is brown; the under tail-coverts are rose-coloured.

Female.—Upper parts of the body, wings, and tail like the male. Forehead and underparts of the body yellowish dirty white, with many dark spots, which latter get longer on the breast and disappear on the stomach. Rump yellowish.

We met with them only in Kan-su, in the alpine regions, on the rocks, on which they climb about very quickly. These birds are seldom to be seen on the grass-covered ground between the rocks; and we never noticed them sitting on a bush or a tree. In summer each pair occupies a certain district. The young, after leaving the nest, keep in broods, but do not assemble in flocks even before migration.

The usual cry very much resembles that of our House-Sparrow, but is much louder. In spring the male sings very prettily, from the point of a protruding rock or stone.

P. longirostris is very shy, and not numerous in Kan-su; we saw it most commonly on the rocky localities at Gadjur. Having arrived, on the 20th of April 1873, in the mountains south of the river Tetung, we found there the present species. The limit of its distribution is formed by the Kan-su mountain-chain.

163. *LINOTA BREVIROSTRIS*, Gould.

Henderson & Hume, Lahore to Yarkand, pl. xxvi.

We first met with this species in Kan-su, where it principally keeps in the bare mountains, but descends also to the plains, and does not greatly avoid inhabited localities. In Northern Tibet we found it wintering on the southern slope of Burhan-Bud, and migrating in spring, about the middle of February, in Tsaidam.

Measurements of a male—length 5''·5, width 8''·5, wing 3''·1, tail (outer feathers) 2''·62, tarsus 0''·6, gape 0''·4.

164. *ACANTHIS LINARIA*, L. *Chechettka*.

Very common in Northern Mongolia. In travelling from Ala-shan to Urga we met with it about the end of August, in the steppes north of the Uliasataysk road; but south of that place we did not find it.

165. EUSPIZA AUREOLA, Pall. *Strenatka chernolitzaya*.

We noticed them in S.E. Mongolia, during the vernal migration, early in May, and found them breeding in the Hoang-ho valley, but not numerous. Between Ala-shan and Urga we occasionally met with them, near wells and rivers, in the bushes. It does not, apparently, occur in Kan-su. It is very common on the Ussuri, and breeds in the meadows on the ground, and sometimes also in the bushes. From three to four is the number of eggs in a nest, which the young birds leave in the end of June, and then keep in large flocks near the cornfields. In spring the male sings very well, usually from the top of a bush, or, if such is not to be found, from some other.

At Lake Hanka the earliest migrants arrived late in April; but the principal migration takes place early in May. The autumnal migration was not noticed by us.

166. EMBERIZA SPODOCEPHALA, Pall.

Middendorff, Sibirische Reise, ii. p. 2, pls. v.-viii.

Found by us only in S.E. Mongolia and Ala-shan during migration, very late—*i. e.* about the middle of May. In Ussuri country it is not so numerous as the preceding species, but still is not very rare. It principally inhabits the bushes and woods, and is but seldom found in the plains covered with grass. It breeds on the ground; and on the 24th of May I found five young birds, just hatched.

In spring, at Lake Hanka, *E. spodocephala* arrives early in April, although the principal migration takes place in the end of that month.

167. EMBERIZA PITYORNIS, Pall. *Strenatka beloshapotchnaya*.

We found it in rather limited numbers north of Gu-bey-key and in Muni-ul, where it perhaps breeds. In Kan-su it arrives about the middle of

April, and occasionally breeds there. In Lake-Hanka basin it was noticed sometimes during the spring migration, which commences there early in March.

168. *EMBERIZA CIOPSIS*, Bp.

Emberiza cioides, Temm. & Schleg. Faun. Jap. pl. lix.

Is very common in S.E. Mongolia, and keeps in the bushes on the mountains, avoiding large woods; and therefore we found it only on the slopes of the Muni-ul mountains. About the end of May, in the Suma-had, we took several nests, built of dry grass, on the ground, in the bushes. Each contained four fresh eggs, of a dull white, with a band of black zigzag marks at the larger end, and sometimes with some great black spots. We also obtained some birds in the Ala-shan, but did not see them in Kan-su.

169. *EMBERIZA GODLEWSKII*, Tacz.

Cab. Journ. f. Orn. 1874, p. 330.

Is of occasional occurrence in S.E. Mongolia, commoner in Ala-shan, and replaces the preceding species in Kan-su. It inhabits the bushes on the mountains, as well as on the plains. Our specimens exactly resemble those from Lake Baikal in the Warsaw Museum.

170. *EMBERIZA PUSILLA*, Pall.

Is tolerably abundant in S.E. Mongolia during migration, late in April and early in May, and was observed by us in rather limited numbers in Ordos and Ala-shan in August and September, probably before leaving the locality.

In Ussuri country *E. pusilla* was observed only by Mr. Maack.



UROCYNCHRAMUS PYLZOWI, PRZEW ♂ ♀

171. CYNCHRAMUS SCHÆNICLUS, L. *Strenatka kamishevaya*.

It is very scarce, and came under our notice only at Lake Dalai-nor and the Hoang-ho valley.

172. CYNCHRAMUS POLARIS, Midd. *Strenatka poliarnaya*.

Middendorff, Sibirische Reise, ii. part 2. pls. i.-iii.

This species, which differs from the preceding one by its smaller size and the dark ashy-coloured wing-coverts of the male, is only rarely to be met with in Mongolia. On account of the scarcity of reed-thickets, it often keeps in the high grass, and sometimes even at great distances from water.

In S.E. Mongolia and the Hoang-ho valley we came across these birds in winter, and observed them also in the reedy marshes of Tsaidam, but never saw any at Koko-nor and in Kan-su.

At Lake Hanka it appears early in March, and gets rather common towards the end of the month. In April, however, only a few remain; and therefore, if *C. polaris* breeds at all in the Lake-Hanka basin, it is only in very small numbers.

Measurements :—

	Length.	Width.	Wing.	Tail.	Tarsus.	Gape.
	in.	in.	in.	in.	in.	in.
♂. Mongolia . . .	5.5	8	2.82	2.6	0.67	0.46
♀. Ussuri . . .	?	?	2.88	2.46	0.7	0.43

UROCYNCHRAMUS, nov. gen.

Rostrum *Emberizæ*, cauda *Uragi*; alæ obtusæ, remigibus 4ta, 5ta, et 6ta longissimis; pedes mediocres, graciles; ungues longi, graciles, leviter arcuati.

173. UROCYNCHRAMUS PYLZOWI, n. sp. *Snigirevidnaya Strenatka Pylzowa*. (Plate LIV. VII.)

Supra fulvus, nigricanti striatus; gula, pectore, abdomine, genis, superciliisque roseis; tectricibus

alarum fuscis, rufo limbatis; cauda longa, gradata; rectricibus externis roseis, apice albo limbatis, quatuor mediis brunneis, fulvescenti marginatis.

Fem. subtus fulvo-albida nigricanti striata; tectricibus tribus externis aurantiacis vel aurantiaco marginatis.

Measurements :—

	Length.		Width.		Wing.		Tail.		Culmen.
	in.	in.	in.	in.	in.	in.	in.	in.	
♂. .	6·8	—7	8·5	—9·3	2·76	—3·4	3·16	—3·56	0·4
♀. .	6·8	—7	8·0	—8·7	2·72	—2·87	3·18	—3·25	0·4

	Gape.		Tarsus.		Middle toe.		Hind toe.	
	in.	in.	in.	in.	in.	in.	in.	in.
♂. .	0·47	—0·5	0·84	—0·9	0·53		0·27	
♀. .	0·46		0·83		0·53		0·27	

Quills—4th, 5th, and 6th longest; sometimes they are all of equal length, oftener, however, 4th = 5th, or 5th = 6th; 3rd > 7th; 1st quill short, just protruding above the upper wing-coverts; the quills 4–7 are cut out on their outer webs. The tail is very much graduated; the outer tail-feather is by 0"·7–0"·95 shorter than the fifth, which is longest. Culmen—upper mandible blackish, lower yellowish with a blackish point; tarsus, toes, and claws black; iris brown*.

Male (in autumn plumage).—Crown and upper parts of the body greyish yellow, with elongated black marks on the middle of each feather. Lores, eyebrows, cheeks, and underparts, with the exception of the centre of the stomach, rose-colour—in autumn with a greyish tint, formed by the tips of feathers, which get rubbed off in spring. Ear-coverts light brown; sides of the neck whitish grey; and almost the same shade is on the back of the neck. Flanks greyish yellow. Quills dark reddish brown, with reddish-yellow edges; secondaries with pale tips. Upper wing-coverts are also dark reddish

* [In the original there is a woodcut inserted here, of the tail, wing, leg, and beak.—EDITOR OF O. M.]

brown, with wide reddish edges ; the yellow tips of the large wing-coverts form a band on the wing. Under wing-coverts grey, with a rose shade ; the joint of the wing rose-colour. The four central tail-feathers dark brown or blackish ; two of them are edged broadly with yellow ; the two remaining ones have sometimes crimson outer webs. The other quills are light crimson, with white tips on the three exterior feathers of each side. Under tail-coverts rose-colour ; upper coverts dark reddish brown, with wide yellow edges.

Female.—Above, the same colour as the male ; but the underparts of the body are yellowish white (occasionally with a rose tint), and with black streaks on the throat, the breast, and the flanks. The outer tail-feather is orange, and the following two or three have only the outer webs of that colour ; but in spring the outer feathers are entirely orange-colour, and the third is of a mixed colour between orange and dark reddish brown on the inner web ; the joint of the wing is also orange.

The long graduated tail and the rose of the plumage, which is not found in any other species of *Cynchramus*, form the principal characteristics of the present species, which I have named after my travelling companion, M. A. Pylzoff, who has been so useful to our expedition by his untiring energy.

We first met with *U. pylzowi* on the sources of the river Tetung, during the autumn migration, early in October 1872 ; and in the spring of the following year we again fell in with these birds there, early in April ; and, as before, they kept singly or in small companies in plains and valleys near rivers, usually about the low thick bushes of *Potentilla tenuifolia*.

Then, again, during our stay of more than a month in the mountains south of the central course of the Tetung, we did not meet with these birds, nor in the preceding year, and found them breeding only towards the end of May, in the alpine regions of the mountain north of the Tetung. Here, as also in the former locality, the birds kept almost exclusively in the bushes of

Potentilla tenuifolia. In Kan-su it occurs only sporadically, and finds there its northern limit of distribution.

The voice of *U. pylzowi* very much resembles that of *Cynchramus schæniclus*; and the flight reminds one of *Uragus sibiricus*, for which the first bird I shot was mistaken when on the wing.

174. PLECTROPHANES LAPPONICUS, L. *Punotchka laplandskaya*.

We found it wintering in Mongolia, and very numerous in the Tsachar country and the Hoang-ho valley. The first birds, however, we met early in December, at a distance of 250 versts (about 166 miles) S.W. of Urga; and then we also came across them on the Kiachta-Kalgan road through Gobi. They usually kept together with Larks, or separately in large flocks of several hundreds.

At Lake Hanka these Buntings appear in great numbers on their spring migration, which principally takes place in the middle of April, although a few birds came under my notice on the 10th of March in 1868. They usually form flocks of from fifty to a hundred, and frequent the burnt-out places of the Sungatchin marshes, and leave them for the north about the middle of May.

175. OTOCORIS ALBIGULA, Bp. nec Brndt. *Javoronok belogorley*.

The original specimen of *O. albigula*, Brndt., now in the Museum of the Academy of Sciences, is the same as *O. penicillata*, Gould (Gray, Gen. of B. pl. xcii.). From this the present species differs thus: (*a*) the black marking of the breast is much narrower, and does not join the black lines on the sides of the throat; (*b*) the bill is shorter, and the ear-feathers are shorter; (*c*) the colour of the upper parts of the body is much paler.

We found it throughout Mongolia; but in Kan-su, Koko-nor, and

Northern Tibet it is replaced by the following species. The first wintering birds we saw even north of Kiachta, near the town of Seleginsk, and all along the road from there to Kalgan. In winter they keep about the Mongolian villages, or in the thickets of some bushes, occasionally assembling in large flocks. In spring these birds pair, and breed in the mountain-valleys, usually on small hills, but not in open steppes. Late in May we found, in S.E. Mongolia, some nests which contained from three to four fresh eggs, whilst those in others were very much incubated.

The eggs resemble in shape and colour very closely the eggs of *Melanocorypha mongolica*, but are somewhat smaller (large diameter 0"·81, small diameter 0"·62).

Its song is rather weak, and is poured forth only when the bird is sitting, usually on a stone or a rising of the ground.

176. *OTOCORIS NIGRIFRONS*, n. sp. *Javoronok chernolobey*.

O. albigula simillima, sed major, rostro longiore et graciliore; coloribus supra obscurioribus; fronte antice nigra, postice alba; cervice late nigra.

By its size and length of bill the present species is intermediate between *O. albigula* and *O. longirostris*, Gould.

Comparative measurements:—

	<i>O. nigrifrons</i> .	<i>O. albigula</i> , Bp.
	in.	in. in.
Length	7·5	7
Width	13·5	?
Wing	4·62	4·25–4·37
Tail	3·35	3·17–3·25
Culmen	0·46	0·39–0·41
Gape	0·68	0·56–0·58
Tarsus	0·83	0·72–0·78
Hind claw	0·44	0·42

We found this Lark in Kan-su, at Koko-nor, Tsaidam, and Northern Tibet; and in the latter place it is very abundant. In its habits and voice it does not differ from the preceding species.

177. *ALAUDA ARVENSIS*, L. *Javoronok polevoy*.

Occurs throughout Mongolia, with the exception of Ala-shan and the most desolate places of the Gobi desert. In Kan-su it is very common, rarer in Koko-nor, of occasional occurrence in Tsaidam, and has not been found in Northern Tibet. We found it wintering in the Hoang-ho valley, where the climate is much milder than in the neighbouring higher-situated mountain parts of Gobi. In S.E. Mongolia we met with some tolerably large flocks, from the early part of March, migrating north; and at Koko-nor we saw several migrating birds on the 20th of March.

The strong and long-lasting gales which occur in spring in Mongolia cause these birds not to sing much; but as soon as the storms are over, the Larks commence at once, and occasionally even at nights.

The earliest nests we found in S.E. Mongolia were finished about the middle of May, being probably so late on account of the grass not commencing to grow till about that time.

This species is very abundant in the Ussuri in unploughed fields and steppes, but always avoids thick grass on the shores of rivers or in valleys.

About Lake Hanka the earliest migrants arrive early in March, but principally towards the end of that month.

178. *GALERIDA LEAUTUNGENSIS*, Swinh. *Javoronok hohlatey*.

Is very closely allied to the European *G. cristata*; but differs from the same (*a*) by its larger size, (*b*) longer bill and crest, (*c*) lighter sandy-yellow plumage; and, finally, (*d*) the blackish spots on the breast of the present

species are wider, not distinctly marked, and spread over a narrower portion of the breast.

Measurements of a male from Ala-shan—length 7"·5, width 13"·5, wing 4"·26, tail 2"·75, tarsus 0"·88, culmen 0"·7, gape 0"·88, distance between the root of the upper mandible and the tip of the crest 1"·5.

The present species has been found by us in S.E. Mongolia, Ordos, and Ala-shan. It does not occur in Gobi, Kan-su, Koko-nor, and Northern Tibet, but is very common in the Hoang-ho valley and the Ala-shan desert, near Mongolian settlements and wells. In S.E. Mongolia it is scarcer than in the two above-mentioned localities, and keeps to the ploughed fields in the neighbourhood of mountains. In its habits and voice it quite resembles its European representative; at least, we could not perceive any difference.

179. *ALAUDULA CHELEËNSIS*, Swinh.

In addition to the distinctions of this species from *A. pispoletta*, Pall., enumerated in the P. Z. S. 1871, p. 390, I must add that the longest of the tertiaries covers only five primaries, the band on the breast composed of black spots is narrower, and the markings themselves are indistinct; outer tail-feather is white, and has often, on its inner web, a large or small triangular spot. In size the present species is not below *A. pispoletta*. The sandy-coloured upper parts of the body in some specimens are much darker.

This is the commonest Lark in S.E. Mongolia, and is also very abundant in Halha, Ordos, and Ala-shan. It lives in the open steppes and valleys, but also occurs on the grass-covered mountain-slopes. In winter it occasionally assembles in large flocks, and keeps in such cases mostly to the bushes. It breeds on the ground, and brings up three or four young ones.

Its song cannot be called pleasant. When singing it does not rise very high, but flies with sudden jerks, constantly drawing in and spreading its wings, and then again lighting on the ground.

180. *ALAUDULA KUKUNOORENSIS*, n. sp.

A. cheleënsi simillima, sed valde major; colore isabellino pallidiore, striis et maculis fuscis minus distinctis; pogonio interno secundæ rectricis albo, fusco limbo; ungue digiti posterioris brevior.

Moreover the outer web of the third tail-feather is quite white; whilst that of *A. cheleënsis* has only a white edge. The longest of the tertiaries covers only five primaries, just like that of the preceding species.

Comparative measurements :—

	<i>A. cheleënsis.</i>		<i>A. kukunoorensis.</i>
	♂.		♂.
	in.	in.	in.
Length	6	to 6·4	7
Width		?	11·5
Wing	3·46	to 3·56	4
Tail	2·5	to 2·7	2·96
Gape	0·5		0·51
Tarsus	0·72		0·8
Middle toe . .	0·42		0·42
Hind toe . . .	0·35	to 0·42	0·3

Has been observed at Koko-nor, Tsaidam, and apparently in Kan-su, where it sometimes occurs even in the alpine meadows.

I am sorry to say we have only a single specimen of the present species, which in its habits and voice does not differ from *A. cheleënsis*.

181. *MELANOCORYPHA MONGOLICA*, Pall. *Mongolsky javoronok*.

Radde, Reisen im Süden von Ost-Sibirien, ii. pl. iii.

We met with it in winter, at first about 250 versts south-west of Urga, and from there all over Gobi. In China proper (*i. e.* between Kalgan and Pekin) this species is very scarce, and probably migrates thither only in very severe winters,—although the frost can hardly hurt any birds wintering in

Gobi at a frost of 37° Celsius; and as there is but little snow, they can easily procure food. In the cold season these Larks assemble in large flocks of some hundreds, and even up to a thousand, and keep exclusively to the "dirisun" thickets.

Its flight is wavy, and very fast. When singing, it rises like our Sky-Lark, but not so high up as the latter does, and sings at times also from a stone, or when flying quite close to the ground. Its own song is not at all copious; but it often mocks the other birds very cleverly indeed, and especially when it is kept in a cage.

In spring they migrate north of the Baikal; but some portion of them remain to breed in Mongolia, where there are meadows. They avoid wild deserts.

We found them very common in summer in S.E. Mongolia; and as the grass of the steppes there commences to grow only towards the end of the spring, they breed very late, the earliest eggs having been taken by us in the beginning of June. They are much larger (large diameter 0".9, small diameter 0".7) than the eggs of *A. arvensis*, and are marked, on a dirty or yellowish-white ground, with grey or pale-brown lines and spots.

It is very remarkable that the Mongolian Lark perches on trees, as I once noticed.

Besides Halha and S.E. Mongolia, we fell in with this species also in the Hoang-ho valley, near Lake Tsaidemin-nor; and then, avoiding Ala-shan and Kan-su, it again appears in the Koko-nor steppes. It does not occur in Tsaidam or Northern Tibet.

182. MELANOCORYPHA MAXIMA, Gould. *Javoronok Velikan*.

Melanocorypha maxima, Gould, Birds of Asia, part xix. pl.

This, the largest species of the Larks, and which originally became known from Afghanistan, has been found by us in Koko-nor and in North Tibet. We met with it for the first time at the sources of the river Tetung,

where the Kan-su mountains acquire the character of meadows with some marshes. Similar marshes, which are rather numerous about Koko-nor and in North Tibet, form the exclusive habitat of the present species, which does not occur in the Tsaidam marshes, as they have a different character.

At Koko-nor, as also in Northern Tibet, these Larks are very common, and have been seen in winter in flocks of hundreds or more, whilst usually they keep in small companies of from five to ten in number.

From the middle of March the males commence singing, usually sitting on some rising ground, with the tail up, and constantly fluttering their wings; but in fine weather they occasionally rise singing in the air. Their notes are very loud; and often the song of other birds is imitated; sometimes one of these birds will whistle like a Snipe, or imitate a Duck, Sandpiper, &c. Its flight is wavy, like that of *M. mongolica*, and rather fast. We did not succeed in observing its breeding, as early in April we had already left the shores of Koko-nor. The basin of this lake forms the northern, and most likely also the eastern boundary of the distribution of *M. maxima*, which has not been observed in China proper.

Measurements :—

	Length.		Width.		Wing.		Tail.	
	in.	in.	in.	in.	in.	in.	in.	in.
♂. . .	9·4	10	17·5	18	5·74	6·13	3·56	3·66
♀. . .	8·5	9	15·5	16·5	5·36	5·5	3·00	3·8

	Gape.		Tarsus.		Hind claw.	
	in.	in.	in.	in.	in.	in.
♂. . .	1·11	1·24	1·12	1·18	0·75	0·9
♀. . .	1·04	1·06	1·10	1·13	0·76	0·83

Young birds in autumn plumage have a yellow-edged throat, usually, however, not very bright; this yellow colour disappears by the spring, through rubbing-off of the feathers; also the crop of the young is marked with indistinct dark spots.

Order III. SCANSORES.

183. PICUS MANDARINUS, Gould. *Diatel mandarinsky.*

In Mongolia we met with it only at Muni-ul, did not see it in the wooded Ala-shan, but came across some birds again in Kan-su, where it principally inhabits the fir and mixed woods; but it is very rare in larch-tree forests. Specimens killed by us late in August were moulting fast. In its habits and voice it does not differ from our *P. major*.

Measurements :—

	Length.	Width.	Wing.	Tail.	Tarsus.	Gape.
	in.	in.	in.	in.	in.	in.
♂. . .	9·5	16	5·38	3·46	0·83	1·32
♀. . .	9·5	14	5·22	3·33	0·8	1·24

184. PICUS LEUCONOTUS, Bechst. *Diatel belospeenney.*

Neither Père David nor Mr. Swinhoe mention this species in their lists of Chinese birds; but we found it on the northern side of Gu-bey-key, *i. e.* just outside Mongolia. It does not differ at all from European specimens.

185. DRYOCOPUS MARTIUS, L. *Diatel jelna.*

Has been obtained at Muni-ul and in Kan-su, but is rare in both localities. It always keeps to the fir-forests, and does not ascend high in the mountains. A male obtained by us in August, at Chertintan, was moulting fast.

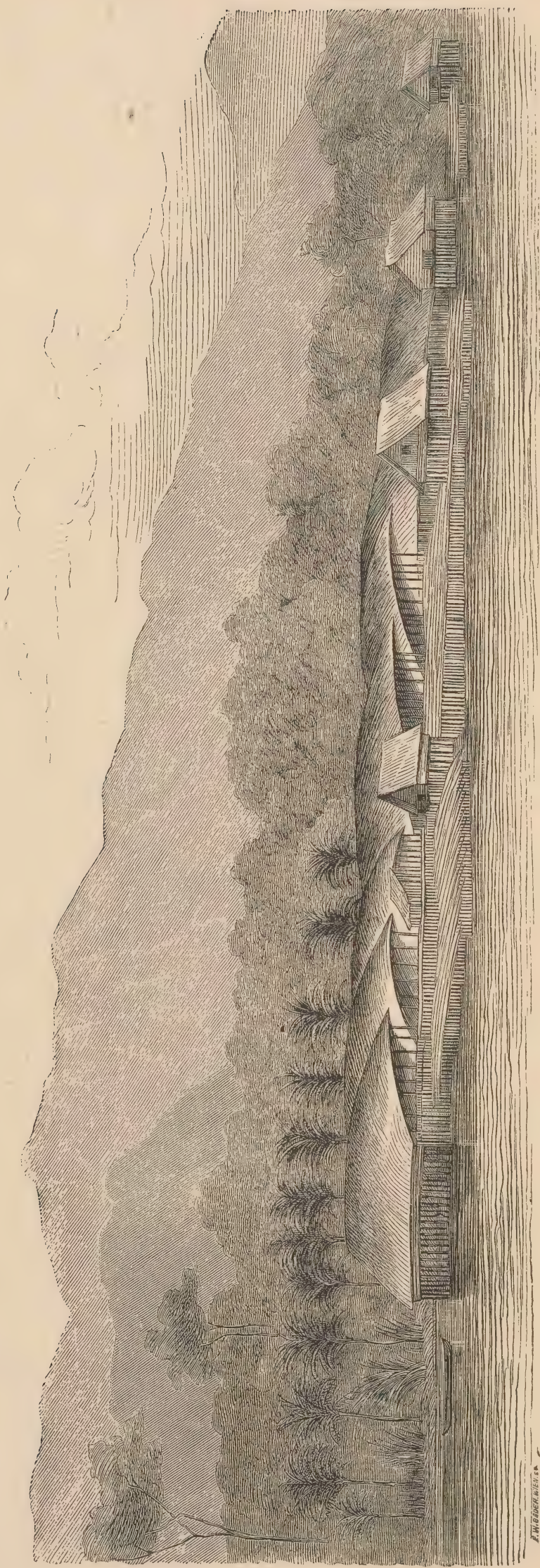
186. CUCULUS CANORINUS*, Müll. *Cucushka veshaya.*

This Cuckoo is tolerably common in S.E. Mongolia, not only in woods

* Journ. f. Ornith. 1872, xx. p. 235.

and bushes, but even on the perfectly bare mountains, and calls in such cases either from stones or when on the wing. It is not rare in the Ala-shan mountains, and still less so in Kan-su, in the lower and middle mountain-ranges, where the earliest calling we heard was on the 4th of May. The autumnal migration takes place towards the end of August. Its voice exactly resembles that of *Cuculus canorus*. It is rather abundant in Ussuri country ; and its cry was heard there from about the 10th of May until the 20th of July.

[TO BE CONTINUED.]



KORDO, ON THE ISLAND OF MYSORE

(FROM A SKETCH BY DR. A. B. MEYER).

ON THE GENUS PITTA.

BY MR. G. D. ROWLEY.

PITTA ROSENBERGI (Schlegel).

[Continued from p. 269.]

I PROPOSED to insert a woodcut of Kordo (on the island of Mysore), the habitat of this Pitta, in the last number of the ‘Ornithological Miscellany;’ but, unfortunately, it was not ready. I have now the pleasure of placing it before my readers, with some words of explanation respecting this interesting village, from the diary of Dr. Meyer. I will only add that it is an exact facsimile of his pencil-drawing, taken April 3rd, 1873.

Sir John Lubbock, in ‘Prehistoric Times,’ 3rd edit. 1872, p. 173 *et seq.*, explains the history of these “Pfahlbauten,” or pile-dwellings; and at p. 176 of that work he says:—“The city of Borneo is altogether built on piles; and similar constructions have been described by various travellers in New Guinea, Celebes, Solo, Ceram, Mindanao, the Caroline Islands, and elsewhere.”

In our own country, at Thetford, remains of such works, resembling the Swiss “Pfahlbauten,” have been described by Professor Newton, in a paper read before the Cambridge Philosophical Society, 31st March, 1862, on the Zoology of Ancient Europe.

In modern times (though not quite on the same principle or for the same

purpose) we have the great capital of Russia, St. Petersburg, built on piles.

I may add, with regard to Mysore, that English maps sometimes represent this as one island, while in truth it consists of three, of which the low island of Mysore proper is the most northern.

Dr. Meyer has sent me the following extracts relating to Kordo :—

“When I approached in my small schooner (a Malay craft) the village of Kordo (the chief Papuan settlement on the island of Mysore, or Willem-Schouten island, as the Dutch call it), some large Papuan boats came to meet me, and, as I supposed, in a friendly way, wishing to help me in finding the course through the coral reefs which encircle the shores near the place. They had their boats fastened to my schooner; and some twenty men immediately boarded it, without asking permission; but they were welcomed as guides.

“I anchored quite in the neighbourhood of the village, before the small river which runs through it, in sight of a mountain-chain ascending steeply from the proximity of the shore. The vessel was soon surrounded by a large number of boats, filled with men; and they all climbed on board, screaming and running about. In vain I tried to make them understand that their presence was not convenient to me; they remained. I was short of water, and intended to despatch some of my men for it; but on preparing, I saw that they would not permit us to go ashore; and at the same time they showed me, near the river, a sort of ‘tabu’ already erected as a sign of prohibition against approach.

“It was only after a while that I discovered the reason for their acting thus. On a former expedition, one of my hunters (a Tidore man) had been engaged here in a bad slave-trading affair, followed by the killing of some Papuan men. It is a sad truth that in these countries the slave-trade still flourishes, the Dutch having no power to prevent it;

although they forbid it, the practice goes on. Those slaughtered were to be avenged; and the Papuans announced openly that they would begin hostilities in case we landed.

“It was my task now to conciliate them; and this can always be done by presents. I spread before those who acted as leading men glass, pearls, knives, red cloth, and such things; but the more they saw, the more they asked for, like children. We could not agree, and, the night coming on, I demanded that they should leave my vessel; but they would not. It was a frantic scramble; and I ordered my best men to prepare their weapons. Fortunately I preserved a philosophical indifference, and looked quietly at all their screaming and swinging of bows and arrows, considering it a better plan to add something more to the presents offered than to fight; and at last away they went.

“The Papuans appear to be very much afraid at night, and do not like to be out of their huts in the dark; this was one reason for their running ashore. But the following morning they came back, not yet satisfied with the presents carried home at night, and asking for more, not permitting us to go ashore. The tabu was still on the river; and I had no more water. Not till I prepared to leave outright with my vessel, and till they understood that they would lose more by my sailing, did they comply, and allow us to land.

“I afterwards made the sketch of the village which is reproduced in the woodcut, and which shows that Kordo is a real ‘Pfahldorf,’ analogous to the old European lake-dwellings; but it also shows that the picture of such a lake-dwelling, facing the titlepage of Sir Charles Lyell’s ‘Antiquity of Man,’ gives no adequate idea of *Papuan* ‘sea-dwellings’ at least.

“The hunting-ground near the village was a very bad one, not only on account of its swampy character, but chiefly in consequence of small bamboo-sticks, from half a foot to one foot long, and pointed at both ends, which had been dug into the ground for miles round the village, as palisades against the mountaineers. The Papuans going barefoot (like all the inhabitants of the Eastern archipelago), are effectually kept off thereby, the pointed

bamboos being hid in the ground, and they are only perceived after the foot is wounded. Even with my European boots I could not stand these bamboos; and *all* my hunters were wounded in such a way that I was obliged at last to leave the ground for this reason, happily not without having procured a series of ornithological treasures, among which I only mention here some new species since described by myself as *Todopsis mysorensis*, *Monarcha kordensis*, *Dicæum geelvinkianum*, *Zosterops mysorensis*, *Myiolestes melanorhynchus*, *Myzomela rubrobrunnea*, *Rhipidura kordensis*, and others."

PITTA CÆRULEITORQUES (Salvadori).

(Plate LXIV.)

This is a very rare bird, belonging to the Sangi group; at present, besides the male and female in my collection, here figured, I know of only one other specimen, which is in the Museum at Genoa.

Looking at the map, one would not imagine that the large island of Sangi (in which name the *g* is sounded sharp; and, as may be seen, I follow the spelling of Dr. Meyer, and not of our English maps and authors) is surrounded by about forty-six smaller ones, some of which are inhabited. These islands are situated in the sea of Celebes, opposite Borneo. Sangi, the large one, is about thirty miles long by ten miles broad, of course volcanic, and up to the present time not very well known. Dr. Meyer beheld a very fatal eruption while in those parts, the account of which I give in his own words:—

"I witnessed, in the year 1871, on the island of Ruang, near Tagulanda (both of which lie between the north point of Celebes and Siao), a dreadful eruption of a volcano. Ruang, indeed, is nothing more than one volcanic pile, which rises conically from the sea. Tagulanda is separated from it by



J.G. Keulemans lith.

M. & N. Hanhart imp.

PITTA CÆRULEOTORQUES, (*Salvadori*)

a small channel, and is inhabited, while Ruang is not; but on its slopes were many plantations, belonging to the inhabitants of Tagulanda. All these were destroyed in a few minutes by the eruption; and a sea-wave, in consequence of it or a simultaneous earthquake, swept away the large village on Tagulanda, opposite Ruang. Only a few houses were saved; of the rest scarcely any thing could be seen. The greater part of the inhabitants were drowned; and several days after the catastrophe had happened I saw many human bodies bleaching on the strand—a state of things not very inviting for zoological researches. I ascended the still foaming and burning mountain of Ruang, which is 3000 feet high, from the top of which the mountains of N. Celebes and those of Siao and Great Sangi can be observed.

“At Likupang, on the north shore of Celebes, the eruption of the Ruang could be seen as a distant fire. Earthquakes were felt near Manado at the same time, and far-off thunder heard. From the top of the mountain Klabat, in the north of Celebes (which is about 7000 feet high, and which I also went up in 1871), Siao can be discerned to the north, and Ternate to the east.”

I have introduced these observations because they illustrate the difficulty and toil ornithological discoverers undergo; and I am very glad to observe that Dr. A. B. Meyer has, since his return, received the appointment of Director of the Royal Zoological Museum of Dresden, which he so well fills.

Those of my readers who wish to understand the volcanic chain which runs from Luzon through Mindanao, just touches Celebes at the tip, passes through the Molucca Isles, takes Timor, Flores, and so on, crosses Wallace's line, and runs along Java and Sumatra from end to end, will turn to the 'Malay Archipelago' (vol. i. p. 11) of that author, and look at the interesting map in which it is marked out.

Those who care for the birds of these regions will also do well, and

spend their time with profit, if they read Trans. Zool. Soc. vol. ix. part ii., which consists of Lord Walden's list of birds of the Philippine archipelago.

Dr. Meyer tells me a few particulars respecting the general aspect of the avifauna of these islands, as follows :—

“I was struck with the scarcity of birds in the tropical forests of the East. It is true that I was prepared for this, Mr. Wallace having made several remarks thereon in his admirable work; but, nevertheless, this truth strikes one, because it is opposed to all we fancy in this respect.

“On Celebes, as well as on the Philippines and New Guinea, you often can walk for hours in the densest forests without hearing more of animal life than, from time to time, the cry of a Pigeon or a Parrot. On the other hand, of course, at certain hours flocks of birds appear, and make a great noise; this is chiefly in the morning and before sunset, and more in the neighbourhood of buildings and plantations, and near the sea-shore, than in the deep forest.”

Mr. Wallace, in the ‘Malay Archipelago’ (vol. ii. p. 225), speaking of the Aru Isles, says :—

“At early morn, before the sun has risen, we hear a loud cry of ‘*wawk-wawk, wö-k-wö-k-wö-k*,’ which resounds through the forest, changing its direction continually. This is the Great Bird of Paradise, going to his breakfast. Others soon follow his example. Lories and Parroquets cry shrilly, Cockatoos scream, Kinghunters croak and bark, and the various smaller birds chirp and whistle their morning song.”

Now here I would ask my readers a question which occurs to me. Is loudness of cry more characteristic of birds in a northern, or of those belonging to tropical regions? The bird which, compared with its size (of those pertaining to the ornis of our isles), possesses, in my opinion, the most far-sounding voice, is, perhaps, the Siskin (*Carduelis spinus*, Linn.); but in order to judge, it must be heard in the field.

Concerning *Pitta cæruleitorques* Dr. Meyer remarks :—

“This species inhabits the largest island of the Sangi group; and it is an interesting one, because it is more closely allied to *Pitta erythrogaster* from the Philippines, in the north, than to the two species from islands immediately to the south (viz. *Pitta paliceps* from Siao, and *Pitta celebensis* from Celebes), and therefore presents a good example of variation of species in consequence of separated insular habitat. Good examples for the same point of view are, amongst others, *Pitta cyanonota* from Ternate and *Pitta rufiventris* from Halmahera, in their relation to the species from the neighbouring islands (New Guinea, Celebes, the Sangi, and Philippine Islands).

“*Pitta paliceps* on Siao is as slightly different from *Pitta celebensis* on Celebes as *Pitta cæruleitorques* on Sangi is from *Pitta erythrogastra* on the Philippines. That insular separation is a reason for such variations is not to be doubted, in my opinion; nevertheless we cannot examine this subject more closely at present. *Pitta celebensis*, for instance, does not show the least difference over the whole extent of the island of Celebes. My specimens from the neighbourhood of Makassar resemble exactly those from Manado—nearly the north and south points of this long, island,—whereas, when we cross over to the closely neighbouring island of Siao, immediately a variation appears, in *Pitta paliceps*.

“Whether this variation has specific value or not is of no importance at all upon this part of the question. Authors do not agree, and never will agree—at least, for some time to come: one says it has; the other says it has not. But all see that a difference exists; and this is of value, notwithstanding its smallness, because it is a constant one.

“That insular separation does not always produce constant differences is known; and I only mention it here for this reason, that it refers to a closely allied species, *Pitta macklotii*. I got a large series of specimens on New Guinea in different places, viz. at Dore, Andei, Passim, Inwiorage, Rubi, and on the Elephant Mountains, and some on the island of Jobi, in the north of Geelvink Bay. I first thought that the Jobi specimens differed by brighter

colours in general, and noted this difference in my diary ; but now, in the cabinet, I do not see the slightest difference in several of the New-Guinea specimens.

“It is to be regretted that the Erythropittas from the Philippines are not better known than they are. Indeed I did not meet a single specimen on Cuyo, Luzon, Guimaras, Panay, Negros, or Cebu. As far as I am aware, only Luzon can be stated at present as the exact habitat of *Pitta erythrogastra*, on the authority of Cuming. But Luzon is a large, long, extended island ; and the note ‘Luzon’ is not sufficient to enable one to go closer into the question, particularly as another Erythropitta has recently been described, likewise from ‘Luzon’ (viz. *Pitta kochi*), by Brüggemann*.

“It would be most desirable to investigate whether, perhaps on the islands intermediate between Luzon and the Sangi Islands (for instance, on the large one, Mindanao), there exists a Pitta which could be placed between *Pitta erythrogastra* from Luzon and *Pitta cæruleitorques* from Sangi, or whether it resembles exactly one of these two.

“*Pitta palliceps* was recorded by Brüggemann from ‘Sangir ;’ but this cannot be exact. The specimens which Schlegel enumerates (Mus. P.-B. Rev. *Pitta*, p. 11) are all from Siao, and were acquired at different times by different collectors. I did not get any specimen from Siao, but several of *Pitta cæruleitorques* from Sangi ; the exact habitat is Tabukan, on the north-east coast of the island. Salvadori did not describe the male and female of this species ; he only had in his hands one specimen, and does not mention its sex. I cannot state any difference between the male and female.

“The following Table shows some of the relations of the species mentioned ;—

* [F. Brüggemann.—EDITOR OF O. M.]



J. J. Leucomans lith.

M & N Hanhart imp.

PITTA SANGHIRANA, (Schlegel.) ♂ and juv.

	Celebes.	Siao.	Sangi.	Philippine Islands.	Ternate &c.	Halmahera &c.	New Guinea &c.
" <i>Pitta celebensis</i>	*						
<i>Pitta paliceps</i>		*					
<i>Pitta cæruleitorques</i>			*				
<i>Pitta erythrogastra</i>				*			
<i>Pitta cyanonota</i>					*		
<i>Pitta rufiventris</i>						*	
<i>Pitta macklotii</i>							*

PITTA SANGHIRANA (Schlegel).

(Plate LXV.)

Pitta sanghirana, Schlegel, Nederl. T. v. Dierk. iii. p. 190 (1866).

Schlegel remarks as follows :—

"PITTA ATRICAPILLA SANGHIRANA.

"Mr. von Rosenberg recently sent us an adult male specimen of a *Pitta*, which was killed on the island of Sanghir. This example approaches in size *Pitta melanocephala* from Borneo, and only differs from it by its green colours being darker and less lively, and the metallic tints of the wing and tail-coverts being of a darker and less silvery bluish-green colour. In fact, *Pitta atricapilla*, *P. borneoënsis*, *P. sanghirana*, and *P. philippensis* (which latter only differs by its somewhat smaller size) are so like each other that they could well be regarded as isolated forms of the same type."

Later, in 1874 (Mus. P.-B. *Pitta*, Rev. p. 5), the same author unites

Pitta atricapilla sanghirana, without a word, with *Pitta atricapilla* from Borneo, and therefore gives up his new species of 1866.

Dr. Meyer remarks thus :—

“Schlegel separated (in the year 1866) the Black-headed Pitta from Sangi as *Pitta atricapilla sanghirana*; but (1874) he mentioned it in his ‘Revue’ simply under the head of *Pitta atricapilla*.

“Salvadori recently stated that the differences between *Pitta sordida* from the Philippines and *Pitta sanghirana* from Sangi certainly are not important ones; and Schlegel before had said that the single difference is the somewhat larger size of the latter.

“It therefore appears that *Pitta sanghirana* will perhaps not prove in future to be a ‘good’ species; but I believe, for the present, one has the right to keep it provisionally separate.

“The materials for the knowledge of this and the allied forms are very poor up to this time, the Black-headed Pittas on the islands in question generally being rare birds. Besides, no specimens are yet on record from the island of Siao (between Sangi and Celebes), all those known from the ‘Sangi islands’ being from the great island ‘Sangi.’ (The exact locality of the specimens in my hands is Tabukan, on the north-east coast of Great Sangi.) Then, no specimens are known, as far as I am aware, from the intermediate large island of Mindanao. I got, in 1872, specimens of *Pitta sordida* only on Luzon and Negros, the south point of the last island being in sight of North Mindanao.

“It is to be hoped that these beautiful parts of the globe will soon be visited by an ornithologist who will bring together what could be termed ‘complete’ collections of each of those islands; they would afford the materials for the highly valuable detailed study of geographical distribution, and would, no doubt, clear up our knowledge with respect to variation of species in consequence of insular separation.

“But such collections would require much time. Nevertheless they are a desideratum ; and certainly they will be made at last.

“The species in question are distributed as follows :—

	Celebes.	Borneo.	Sangi.	Negros, Luzon.
“ <i>Pitta forsteni</i> †	*			
<i>Pitta mülleri</i>		*		
<i>Pitta sanghirana</i>			*	
<i>Pitta sordida</i>				*

Mr. D. G. Elliot, in his article on the Pittidæ (Ibis, n. s., vol. vi. 1870, p. 411), says :—

“PITTA SANGHIRANA, Schlegel, Ned. Tijd. Dierk. 1866, p. 190.

“This bird is *P. atricapilla*, auctt., from Sanghir. Dr. Schlegel distinguishes it only by the green being darker and less bright, and the shoulders and rump being of a darker blue and less silvery. These differences, which

† [Named after Mr. E. A. Forsten, the Dutch naturalist, who discovered *Loriculus stigmatus*. He graduated at Leyden in 1836, and then went to Java as a member of a Government Committee of Natural History. Schlegel calls him Dr. Forsten, which I suppose to be correct. In the year 1841 the Governor-General Merkus, in Batavia, sent him to North Celebes, where he suffered a good deal from illness, and therefore could not pursue scientific researches as much as he wished. He died on January 2nd, 1843, in Amboina.

This gentleman first made known to us *Pitta forsteni*, Müll., on Celebes, *Megapodius forsteni*, Temm., and the very remarkable *Meropogon forsteni*, Temm. The latter bird has recently been figured by Mr. Gould, in his ‘Birds of Asia,’ part xxv. Mr. Forsten discovered this fine Bee-eater at Tondano, N. Celebes ; and this single example remained a unique specimen, in the Leyden Museum. Rosenberg and Mr. Wallace failed to procure it. Dr. Meyer, however, rediscovered it in 1871, in the mountainous parts of Minahassa, as he writes to me. He only obtained a few ; and it is still a very rare bird in collections. It is a frequent practice to describe a species without any reference to the individual by whom it was discovered, and after whom it is named ; but it is desirable to give every one his due credit. This is only just ; all should be served alike, small and great.—G. D. R.]

do not appear to be constant, but vary in all the birds of this section according to age, are not sufficient to establish a species. Nor do I think that the extent of white on the primaries is of specific value, as I find that specimens from the same islands vary in this mark very considerably; and I am inclined to believe that the one separated as *P. muelleri* on account of the primaries being all white, is only an adult of *P. atricapilla*. Specimens of so-called *P. sanghirana* which I have examined do not agree together in the extent of white on the primaries; and if this mark were of specific value, they should be separated. But my examination of the specimens lately placed at my disposal, together with (through Mr. G. R. Gray's kindness) those contained in the British-Museum collection, leads me to the conclusion that those birds of this section with white on their primaries have but a comparatively small extent of it when young, and that it increases in successive moults as the bird grows older, until it occupies almost the whole feather, the end only being tipped with black, as we see in so-called *P. muelleri*, which, according to my view, is only the adult form of *P. atricapilla*."

Lord Tweeddale (then Lord Walden) says (Trans. Zool. Soc. vol. ix. part 2, p. 188):—

"Six species of black-headed green-bodied *Pittæ* are fully established as meriting specific distinction:—

- "1. *P. novæ-guinææ*, Müller & Schlegel. New Guinea and the Aru Islands, and most of the Papuan Islands.
2. *P. sanghirana*, Schlegel. Sanghir Islands.
3. *P. rosenbergii*, Schlegel. Soek Island, in the Bay of Geelvink.
4. *P. forsteni*, Bp. Celebes.
5. *P. muelleri*, Bp. Borneo.
6. *P. sordida* (L. S. Müller) Philippines.

“The first three species are representative forms of a Papuan type” [?];
“the remaining three of an Indo-Malayan.”

Description of the young bird in the Plate.—The head is brownish black, not the rich black of the adult. The throat is almost white; breast and lower parts greenish brown; back also greenish brown, but much darker; vent a light strawberry-colour. There is a large patch of white in the middle of the primaries, which commences small on the inner web of the first feather. On the rump a light blue patch is seen. Beak black.

The sexes, in maturity, are alike.

Total length of male in the Plate, about 7 inches.

The two figured were sent me as the adult male and young by Dr. Meyer, and are in my collection.

PART IX.

“I have brought you a letter and a couple of pigeons here.”

Titus Andronicus, Act iv. sc. 4.

ON THE GENUS PTILOPUS*

(PTILONOPUS, Swains.†).

BY MR. G. D. ROWLEY.

BONAPARTE speaks thus ('Conspectus Generum Avium,' vol. ii. p. 19):—

“PTILOPUS, Sw. 1825 (errore *Ptilonopus*! pejus *Ptilinopus*!! pessime *Ptinilopus*!!! Kurukuru, O. des Murs).

“Rostrum modicum; pedes parvi: alæ breves, rotundatæ; remigum prima brevis, apice statim subulato, prælongo; sexta longior quam prima; tertia omnium longissima: cauda brevis rotundata: plumæ pectoris bifidæ, rigidulæ: colores virides et purpurei, pileo roseo-violaceo. Juvenes pileo concolore: remigibus margine apicali albo; prima apice angusto, sed non subulato: plumis omnibus flavo-lunulatis. Ocean.”

ÆDIRHINUS INSOLITUS.

The Strange Pigeon.

(Plate LXVI.)

Ptilopus insolitus, Schlegel.

In the collection of birds formed by Mr. George Brown, C.M.Z.S., on

* Th. πτίλον, τό, the down or soft feather, and πούς, ό, a foot.

† Mr. G. R. Gray, in 'Genera' (vol. ii.), says:—"Established by Mr. Swainson (Zool. Journ. i. p. 473) in 1825; it has been since changed to *Ptilopus* by Mr. Strickland."

Duke-of-York Island and on the adjoining parts of New Ireland and New Britain, was one specimen of this bird. I am indebted to Mr. Sclater for the use of a rough proof of the paper read by him at the meeting of the Zoological Society, February 20th, 1877, in which he alludes to this specimen thus :—

“*ÆDIRHINUS INSOLITUS* *.

“*Ptilopus insolitus*, Schlegel, Ned. Tijdschr. i. p. 61, pl. iii. fig. 3.

“*Ptilopus humeralis jobiensis* (monstr.?), Schlegel, Mus. P.-B. *Columbæ*, p. 16.

“*Ædirhinus globifer*, Cab. et Reich. Journ. f. Orn. 1876, p. 326.

“One example of this remarkable Pigeon, from Duke-of-York Island, obtained in October 1875. Schlegel originally described his specimen, with which mine appears to agree in all essential particulars, as from ‘New Caledonia,’ but subsequently came to the strange conclusion that it was only a monstrous variety of *Ptilopus jobiensis* !

“There can be, to my mind, no doubt of the validity of the species, which I agree with Hrn. Cabanis and Reichenow should even constitute the type of a new genus, readily recognizable by the hard bony protuberance on its forehead.

“Dr. Hüsker obtained the specimen described by the last-named author in New Ireland, during the voyage of the ‘Gazelle.’ ”

In ‘The Ibis,’ April 1877 (4th ser. vol. i. p. 239), we find that this German expedition conveyed the astronomers of that nation to Kerguelen’s Land, for the observation of the Transit of Venus in December 1875, when Dr. Hüsker, the medical officer in charge, obtained in the above-named island, and in other places visited during the voyage round the world (Fiji Islands, New Ireland, New Hanover, Timor, and New Guinea), 143 species of birds, which are enumerated by Messrs. Cabanis and Reichenow†.

* *Drepanoptila insolitus*, G. R. Gray, Hand-list of Birds, vol. ii. p. 227. no. 9157 (1870).

† “Uebersicht der auf der Expedition Sr. Maj. Schiff ‘Gazelle’ gesammelten Vögel. Zusammengestellt von J. Cabanis und A. Reichenow,” Journ. f. Orn. 1876, p. 319.



J. G. Keulemans lith.

M&N Harhart imp

PTILOPUS INSOLITUS (Schleg)
The Strange pigeon.

Among the remarkable birds mentioned is "*Ædirhinus globifer* (new genus and species of Fruit-Pigeons), from New Ireland."

The following is from Schlegel (Nederl. T. v. d. Dierk. i. 1863, p. 61), about this species :—

"PTILOPUS INSOLITUS. (Plate 3. fig. 3.)

"I am sorry to say that I only know, of this excessively curious, very fine, and new species, one single specimen, unluckily mutilated; for the tail-feathers and the extremities of the primaries are taken off. It has been given to me as coming from New Caledonia.

"This *Ptilopus* approaches *P. iogaster*, *P. viridis*, and *P. pectoralis* by the whitish-grey patches with which its wings are adorned; but its system of coloration is very different, and it deviates from all known species in having the forehead furnished with a naked protuberance, resembling in some way those of some species of *Carpophaga*, as *C. globicera* and *C. rubricera*, but much more developed and very different in its origin and form.

"This protuberance, in the species of *Carpophaga* produced by a tumour of the soft part of the bill, which surrounds the nostrils and even encloses these nostrils, originates in our *Ptilopus* by a swelling of the parietes of the anterior half of the forehead, which commences behind the nostrils; it rises rounded in front and broadens behind, and comes down to the lores; its posterior margin is rectilineal, and its colour shining yellowish white. The bill presents the forms, the colours, and nearly the size of that of *P. iogaster*, its anterior part being white, its posterior blackish. The feet are as in *P. viridis*, but their colour somewhat brownish. This curious bird does not appear to be smaller in size than the last-named species.

"The prevailing colour of the plumage in *P. insolitus* is a golden bronze-green reflecting purplish red, especially on the wings. The anterior part of the wing is of a whitish grey; and the same colour occupies the secondaries (with the exception of their margins), the large and the middle

wing-coverts, which are nearest to the dorsal part of the wing. The quills and the large wing-coverts are narrowly bordered with citron-yellow. The lower vent is variegated with white and light yellow. On the middle of the belly is a large patch of fine yellow-lead-coloured red. The inferior surface of the wing is grey."

Dr. Meyer sends me, in a letter, the following further particulars about the species in question :—

"Prof. Schlegel described and figured this curious bird in the year 1863, after a mutilated specimen, and says 'Il m'a été donné comme provenant de la Nouvelle Calédonie.'

"Mr. Wallace, in his valuable monograph on the Pigeons of the Malay Archipelago ('The Ibis,' 1865, p. 365), does not mention *P. insolitus*, although he gives the habitats of several species from the islands on the east of New Guinea, and cites two other Pigeons which Prof. Schlegel had described on the same occasion as *P. insolitus*.

"In the year 1873 the last-named author, in his monograph of the *Columbæ* (Mus. P.-B. p. 16), gave up *P. insolitus*, Schl., as a species, and placed it under the head of *P. humeralis jobiensis*, Schl. But *P. insolitus* is distinguished from *P. humeralis jobiensis* by the following characters, which are obvious, but which could not be clear to Prof. Schlegel, as his single type specimen is mutilated; it is also in consequence of this fact that the figure which accompanies his paper is insufficient. I collected in the year 1873, in the month of April, on the island of Jobi, near Ansus, four specimens of *P. humeralis jobiensis*, Schl., which are now before me (two males and two females); and these give sufficient material to compare with the two specimens of *P. insolitus*, Schl., under examination. The differences of these two birds will be clear at once in comparing Mr. Rowley's description and plates of the last-named species with Prof. Schlegel's description of *P. humeralis jobiensis* (Nederl. T. v. d. Dierk. iv. p. 25, 1873); and I therefore only mention here the following chief points :—

“(1) The end of the tail of *P. insolitus* bears on its upper surface a broad grey band, about 30 millimetres long, which is uniform green in *P. jobiensis*.” [Each feather is edged with yellowish green.—G. D. R.]

“(2) The patches on the upper parts of *P. jobiensis* are blue, with a violet tinge; they are whitish grey in *P. insolitus*.

“(3) *P. insolitus* is considerably larger than *P. jobiensis*; for instance, wings 135 and 110 millims., tail about 100 and 70 millims.

“I therefore cannot agree with Prof. Schlegel, but am obliged to take it as a good species.

“Dr. Finsch, in the year 1874, in his enumeration of the *Ptilonopi* from the Pacific islands (P. Z. S. p. 94), does *not* mention *P. insolitus*. I therefore presume that he accepted Prof. Schlegel’s view.

“On the other hand, Count Salvadori, in his Prodr. Orn. Pap. (Ann. d. Mus. Civ. Gen. ix. 1876–77), does not mention the species sub *P. jobiensis*, Schl. (p. 198)—a fact which makes me suppose that perhaps he does *not* share Prof. Schlegel’s view, or, at least, that he never saw *P. insolitus*.

“Now as to the habitat of *P. insolitus*. Schlegel’s short note thereon has been quoted above; and its meaning seems to me to be that he himself has some doubt of the correctness of the statement. Later, in the monograph of the *Columbæ* (Mus. P.-B. 1873, p. 17), when enumerating the specimen sub *P. humeralis jobiensis*, he even omits the doubted locality, and only says:—‘5. Individu type du *Ptilopus insolitus*, acquis en 1862.’

“It seems an unfortunate circumstance that neither am I able to give the exact habitat of the species; for the two specimens in question recently arrived in a small collection of birds sent from Manilla, containing skins from very distant points of the East. For instance, besides birds from Cebu, it contained:—*Ptilopus perousei* (Peale), *Halcyon recurvirostris* (Lafr.), *Coriphilus fringillaceus* (Gm.), and others, apparently from Samoa; the rare *Carpophaga rubricera*, G. R. Gray, probably from New Ireland or the Salomon Islands; further, some birds decidedly from New Guinea or some island in its vicinity, &c. I therefore can neither confirm New Caledonia as the habitat

of *P. insolitus*, nor state another one; this question must be left open for the moment; but it is to be hoped that we shall not remain long uncertain thereon, as it concerns an interesting and rare bird, whose generic position even, perhaps, has still to be fixed. Gray, in his 'Hand-list,' groups it together with *Drepanoptila holosericeus* (Temm.), from New Caledonia; but I believe it must be grouped together with *P. humeralis*, *P. jobiensis*, and *P. iozonus*, and perhaps will be placed in a genus for itself by those who like to separate forms deviating, as *P. insolitus* does, generically from others.

"The above-named similarly coloured species are distributed as follows:—

"PTILOPUS HUMERALIS, Wall.

"North-west of New Guinea, island of Salawati, and island of Mansinam, near Dore (*Meyer*). (P. Z. S. 1862, pl. 21.)

"PTILOPUS JOBIENSIS, Schl.

"Island of Jobi.

"PTILOPUS IOZONUS, G. R. Gray.

"South-east of New Guinea, Aru Islands.

"I think it probable that the habitat of *P. insolitus*, Schl., will finally prove to be some island-group in the east of New Guinea."

Two of these birds were sent me by Dr. Meyer, one larger, the other smaller, the plumage being exactly alike; and each had the protuberance. I take them to be male and female, in which case there would be no difference in the sexes, except size. I retained the larger for my own collection; and it is the one figured in the Plate, a supposed male. If both male and female have the protuberance, this remarkable feature is thus deprived of any sexual character.

Mr. A. R. Wallace ('Malay Archipelago,' vol. ii. p. 367), speaking of *Carpophaga tumida*, says :—" I was also much pleased to obtain a fine series of a large Fruit-Pigeon with a protuberance on the bill (*Carpophaga tumida*), and to ascertain that this is not, as has been hitherto supposed, a sexual character, but was found equally in male and female birds."

Dr. Cabanis and Dr. Reichenow have placed this strange Pigeon in a new genus, *Ædirhinus*—and justly so, as appears to me ; for though there are various others in which the germ of a protuberance appears, yet in *Ædirhinus insolitus* we may fairly suppose that it has reached its maximum of development (*cf.* the plate in Gray's 'Genera,' vol. ii. *Columbinæ*, 118) ; nor can it be said that in any of these cases there is much resemblance to the one before us.

Compare now *Carpophaga rubricera* with *Ædirhinus insolitus* :—

ÆDIRHINUS INSOLITUS.

Total length $8\frac{3}{4}$ inches. The protuberance extends very nearly to the eye, is broad on the top of the skull ; for this is essentially a square-headed bird, and not of the dolichocephalic or long-headed type.

CARPOPHAGA RUBRICERA.

Total length 15 inches. The protuberance does not extend beyond the base of the beak, or ascend the forehead ; it rises up perpendicularly ; is only half the size in proportion to that of the former bird. The distance between the eye and the protuberance is considerable. In the plumage of the two birds there is no resemblance.

It is worthy of remark that the colour of the protuberance in *Ædirhinus insolitus* is much the same as that of the patch on the underpart of the Pigeon (*viz.* orange) ; and in these birds frequently the colour on the head coincides with that of the underparts.

What is the use of this swelling?—a most difficult question, and one which may be asked concerning other species as well as the one before us, notably *Pauxis galeata* &c. among the Curassows, the Bucerotidæ also.

On relaxing the skin of my specimen, and opening the mandibles, it presented a very different appearance from what it did in its contracted condition. It became manifest that the protuberance is essentially a feature belonging to the beak, beyond the base of which it does not extend; neither has it any connexion with or relation to the brain. I was tempted to make a section straight through the middle; but it would spoil the bird and probably tell nothing.

The following extracts from a foreign author are added, without giving any opinion as to his views on the subject under discussion:—

WILLIAM MARSHALL: Ueber die knöchernen Schädelhöcker der Vögel.
[On the Bony Protuberances of the Skull of Birds.] Haarlem and
Leipzig, 1872. 8vo, 47 pp., 2 pls.

Page 13:—

“Among the Pigeons, some of the subfamily of the *Carpophaginæ* are remarkable in respect to the protuberances at the base of the upper mandible; but these are merely formed by the cere. In this respect they ought not to be considered here; but I am of opinion that the mode of the occurrence of the phenomenon in this family also throws light on the origin of the bony protuberances in other birds. In *Carpophaga* (*Globicera*) *pacifica*, Reich., the swelling of the cere is not a large one, and it is of a black colour; in *C. rubricera*, Gray, it is more conspicuous, and of a fine red colour. But the most interesting is *C. roseinucha*, Schlegel. There are two races of this bird, each having a special geographical range. The one occurs in New Guinea; and the adult has in both sexes a protuberance, which is often very conspicuous; this race, therefore, belongs to the subgenus *Globicera*, in

which Wallace consequently places it, under the name of *Globicera tumida*. The occurrence of a swelling at the base of the upper mandible is considered characteristic of this subgenus; but Wallace makes a mistake in comparing this phenomenon to the protuberance in *Anser cygnoides*, which protuberance belongs to the bony system: a comparison with *Anas tadorna* would have been more apt. The other race of *C. roseinucha* occurs on the Ceram-laut island-group; it is perfectly similar to the former, but wants the swelling of the cere; it therefore ought to be placed, according to modern systematic ideas, in another genus or subgenus; and this Wallace does, in describing it as *Carpophaga concinna*."

Page 15:—

"Very interesting and, as I believe, of great importance for the understanding of the question, is the fact that there are domesticated Pigeons whose cere forms a strong protuberance, just as in the New-Guinea race of the wide *C. roseinucha*, viz. in the 'English Carrier' and in a smaller degree in the other subraces of the so-called 'Turkish Pigeon.' We therefore have here a similar phenomenon as in some individuals of the domesticated races of *Anser cygnoides* in comparison with other Lamellirostres, which are (as, for instance, *Fuligula nigra*) conspicuous by a bony protuberance.

"Another occurrence, which is just as remarkable, though in a different respect, must be mentioned here. Schlegel described, in the year 1865, under the name of *Ptilopus insolitus*, a form of *Ptilopus* which is very curious. It probably came from the New Hebrides, much damaged, and no doubt a young individual. Now a most strange thing was a strong bony protuberance, of 4 millims. height, at the base of the upper bill—an occurrence certainly unique in the genus *Ptilopus*! But this protuberance has now proved (and Prof. Schlegel himself has directed my attention to it) to be a pathological phenomenon. Nevertheless this case is a very interesting one; and, according to my opinion, it is of great importance as to the understanding of all

protuberances ; it gives a new point of view with respect to the question of their origin.

“ In Gallinaceous birds markings on the head are more common than in Pigeons—nay, even than in any other family of birds. They are formed in the most diversified manner—as tufts of feathers, as developments of certain parts of the skin more or less capable of erection and filled with pigment and blood-vessels, or, finally, as protuberances which belong to the bony system. All these phenomena have the same cause and the same effect. . . .

“ Thus, in the genus *Crax*, the species *C. alberti*, *C. rufa*, *C. alector*, and others have on the whole upper head, beginning from the base of the bill, a stately tuft, consisting of peculiar curled feathers, more hardened and glossy than the other plumage. In *C. carunculata*, besides this tuft, occurs, on the base of the black bill, a red, rather strongly thickened cere, which has this effect, that the end of the upper mandible appears to be considerably heightened. In *C. globicera* this cere is yellow, and it has a bony support in the region situated on the ridge of the bill. . . . *C. mitua* shows a larger similar prominence of the processus frontales of the intermaxillaria, as *C. globicera*, which prominence, however, does not serve as support to a swelling of the cere. This has disappeared ; and at the same time the tuft of feathers has become smaller, while the protuberance has got stronger. The excess of such a bony swelling is to be found in *C. pauxi*. . . .

“ Similar phenomena to what the species of *Crax* show appear in the species of the genus *Numida*. Two have a tuft of feathers on the head, viz. *N. plumifera* and *N. cristata* ; in other species at the same spot a high bony protuberance is to be found, mostly covered with a skin of a vivid red colour, in both sexes. In addition to the fact that all species of the genus look very much alike, they are all black or dark greyish with white drops. The protuberance gets its greatest strength in *Numida mitrata*. . . . In every species . . . it is formed by parts of the frontalia, which are closely blended together, and is spongy within.

“In *Megacephalon maleo*, on the hinder part of the head a bald region is to be found, which rises chiefly behind; it is covered with a strong black epithelium. In the young bird this naked protuberance is not yet developed; . . . the head is covered all over with feathers. . . .

“The Casuaries, as to the protuberances on the head, approach closely the Gallinaceous birds.”

Page 41:—

“*Summary and Conclusion.*”

“The results arrived at may be summarized under the following heads:—

“(1) The bony protuberances on the bills and skulls of birds are either swellings full of bladders, or spongy metamorphoses of certain, often very different bones.

“(2) They are always pneumatic; that is to say, the air enters from the lungs or directly from the nose.

“(3) These protuberances either occur in both sexes or only in one, and in the latter case in the male. They must generally be understood as results of sexual selection.

“(4) Where these protuberances occur in both sexes in the same manner, they are very old (*Numida*, *Casuaris*, most species of *Buceros*, &c.), and consequently are already developed in the very young birds. Where they only occur in one sex they are acquired much later in the series of progenitors; they consequently are developed only at the commencement of puberty (*Fulica nigra* &c.).

“(5) In certain families single members possess bony protuberances (*Fuligula nigra*, *Crax pauxi*, *Numida meleagris*, &c.), which are represented in others by similar phenomena, but which belong to another system of the body (*Cygnus olor*, *Crax alberti*, *Numida plumifera*, *N. cristata*, &c.). Between these two forms are connecting links (*Fuligula spectabilis*, *Crax mitra*).

“(6) It does not matter which organs or which parts of organs are claimed in the interest of sexual selection, if only the result is the same.

“(7) These structures *cannot*, when generically very old, represent sexual selection alone, perhaps not at all. They can have taken upon them other functions, and, for instance, serve the excellently flying Bucerotidæ as pneumatic organs, facilitating the flight; nay, they can even have altered their function in a third way, as, for instance, certainly in *Buceros scutatus*.

“(8) Although the spongiosa of the protuberances is not constructed in an irregular manner, especially not in *Buceros*, it nevertheless could not, till now, be reduced to the laws which Meyer and Wolff have shown to come into action with the human spongiosa; but this was quite possible for the spongiosa of the bills.

“If we search for the reason of all these protuberances, sexual selection will, as already has been pointed out, in most cases have come into action. . . .

“But these protuberances were not bound to be developed successively; they could also have appeared suddenly, as a pathological phenomenon, either in *one* individual or (because some were under the same conditions) in several. But if it be correct, which is often reported, that females of birds have a predilection for certain misformed males, which are, after our ideas, not even beautiful, such pathological occurrences could become important factors in sexual selection, and easily be transferred as an inheritance in a wild state. That they occur in a wild state, *Ptilopus insolitus* proves.”

PTILOPUS JOBIENSIS (Schlegel).

(Plate LXVII.)

Ptilopus humeralis, Schlegel (from Jobi), Nederl. T. v. d. Dierk. iv. p. 25 (1873).

Ptilopus humeralis jobiensis, Schlegel, Mus. P.-B. Col. 1873, p. 16.

(*Ptilopus insolitus*, Schlegel, *ibid.*?).

Ptilopus jobiensis, Schlegel; Salvadori, Ann. Mus. C. Gen. ix. p. 198 (1876-77).

Before saying any thing about this bird, it may be well to make a few



J. Smit lith

M & N Hanhart imp

PTILOPUS JOBIENSIS. (*Schlegel.*)

short remarks on the island of Jobie, or Jobi, from which it takes its name. Situated at the entrance of the great bay on the northern side of New Guinea, ninety miles long, traversed by a ridge of mountains, and without a single cove or creek suitable to receive a large ship, it is described thus by Mr. Wallace, in his 'Malay Archipelago,' vol. ii. p. 112 :—

With respect to its natives, he states that "they are in a very barbarous condition, and take every opportunity of robbery and murder—a habit which is confirmed by the impunity they experience, owing to the vast extent of wild mountain- and forest-country forbidding all pursuit or attempt at punishment."

Again, p. 319 :—

"Jobie is a very dangerous place; and sailors are often murdered there when on shore; sometimes the vessels themselves are attacked."

Such was the bad character given to the island in 1869, when Mr. Wallace published that charming work, the 'Malay Archipelago.' In fact, it was little known zoologically before the visits of Von Rosenberg, Dr. Meyer, and Beccari. Now, however, its avifauna appears to be pretty well established.

A list of all known species from this island, from time to time, is valuable in the interest of Geographical Distribution, so well inaugurated by Mr. Wallace, and also a similar knowledge of every one within the vast archipelago of the East.

This kind of study, pursued with exactness, will bring to light a series of unknown laws on the mode of zoological dispersion, and perhaps the reasons of variation.

In Mr. Wallace's time Jobi occupied this position in the world: it was a place whereto imperfectly known and rare species of birds could be relegated, as, for instance *Eclectus cornelia*, Bp. ("probably either Ceram-laut

or Jobie Islands," Mr. Wallace, P. Z. S. 1864, p. 286), *Eclectus westermanni*, Bp. ("probably New Guinea or Jobie Islands," Mr. Wallace, *l. c.* p. 287), *Astrapia nigra*, and others. In fact, some rare and scarcely known species are even now without an exact habitat in science, perhaps some in nature.

However, knowledge has increased, and Jobi is no longer a *terra incognita* in the sense it used to be, viz. that all unknown things which could possibly occur there are hypothetically so placed. It is not to be thought, however, that in the chain of mountains of this interesting island, or even on its steep shores, a considerable number of unknown treasures, delightful to true ornithologists, may not exist. But the surface has been gone through; and a highly interesting one it proves.

Returning, however, to the bird under consideration, Dr. Meyer informs me that Prof. Schlegel gives (*cf.* Mus. P.-B. Col. 1873, p. 15) the measurements of

	Wing.				Tail.			
	in.	lin.	in.	lin.	in.	lin.	in.	lin.
<i>Ptilopus humeralis</i> . .	4	4	to	4	6	2	1	
<i>Ptilopus jobiensis</i> . .	4	2	to	4	4	1	9	to 1 10

Prof. Schlegel at first did not separate *P. jobiensis* from *P. humeralis* specifically, but did so a short time after as *P. humeralis jobiensis*, to which mode of separation he does not appear to attach specific value in the ordinary sense. Salvadori first clearly separated it specifically.

The specimen figured is a male, killed near Ansus, on the island of Jobi, in the month of April 1873, by Dr. Meyer. He got there four specimens, two of which are males and two females. The sexes are not to be distinguished. *P. humeralis* he only got on the island of Mansinam, near Dore.

It may be observed that another constant difference between *P. humeralis* and *P. jobiensis* appears to be that in the cere the soft parts of the base of

the bill are dark (nearly black) in the latter, but orange-coloured in the former (see also Mr. Wallace's figure, P. Z. S. 1862, pl. xxi.).

In addition to Dr. Meyer's remarks, the following translation is of interest :—

Schlegel, Nederl. T. v. d. Dierk. iv. 1873, p. 25, sub *P. humeralis* :

“ M. von Rosenberg found this *Ptilopus* again on the island of Jobi ; but it offers some constant modifications in its coloration. The most conspicuous is this, that the small wing-coverts are of a uniform greyish lilac, and that they consequently do not show any trace of this fine purple violet, which forms edgings in the individuals of the race from Western New Guinea and the island of Salawatti. Besides, the dominant green of the plumage is, in the race from Jobi, mostly strongly bronzed, especially on the head, on the primaries, and on the upper surface of the tail-feathers.”

Schlegel, Mus. P.-B. Col. 1873, p. 16, sub *P. humeralis jobiensis* :

“ Similar to *P. humeralis*, but of somewhat smaller size, and without purple patches on the small wing-coverts.”

The total length of the bird figured, which is in my own collection, is 7 inches ; and the illustration is for the purpose of comparison with *Ædirhinus insolitus* (Plate LXVI.).



W.L. Walton. lith.

M & N Hanhart imp

CATCHING BIRDS WITH DOG AND NET, IN THE OLDEN TIME.

ON BIRD-NETS.

BY MR. G. D. ROWLEY.

“ He would so, and then go a bat-fowling.”

The Tempest, Act ii. sc. 1.

NEXT to ‘Waverley’ (the incomparable) many persons think that ‘Anne of Geierstein’ takes rank, among the works of Scott. At all events, the Partridge scene (when Arthur de Vere meets Annette Veilchen and the boy with the trained spaniel, driving the birds into the net, in the valley of the Rhine) comes with refreshing beauty on the mind of the reader, saturated as it is with the gloomy horrors of the Holy Vehme. This change is the touch of a master in fiction.

Netting Partridges* was an ordinary matter in former days. In Willughby’s ‘Ornithology’ we have a representation of “catching birds with a setting-dog and nett,” done with great spirit; also of a tunnelling net for Partridges, where a man disguised as an ox does the part of the dog. The other illustrations of these modes of capture are very quaint and interesting, such as tunnelling for Quails &c.

The lithograph of the setting-dog and net is copied from Ray’s

* I have seen a silk net, in Skye, for taking Grouse, which had been used, and by means of which several islets belonging to the shooting had been well stocked by the keeper, as we soon found to be the case.

Willughby, as is also the "taking birds with the low-bell." The work is dated 1678.

Low-bell means flame-bell :

"The fowler's low-bell robs the Lark of sleep."—KING.

The bell round a sheep's neck was also called a low-bell; why, does not appear. We have likewise Low Sunday, the 8th day after Easter; but this has no relation to either. In the lithograph the low-bell will be seen hanging from the man's waist.

Willughby says (p. 35):—

"*Of taking Birds with the Low-bell.*—This is of use in champain countries, and that from the end of October till the end of March following. About eight of the clock at night, the air being mild, and the moon not shining, take your low-bell, of such size as a man may well carry it in one hand, having a deep, hollow, and sad sound." Then follows an account of the drag-net.

"He that carries the bell must go foremost, and toll it as he goeth along, as solemnly as may be, letting it now and then knock on both sides. Another must carry a pan of live coals, but not blazing. The sound of the low-bell astonies the birds, and makes them lie close; and the blaze of light dazzling their eyes affrights them, and causes them to rise and make to it. In this pastime all must be done with great silence, no noise being heard but the low-bell only."

The hand-net in the lithograph is called in Italy "*lanciotoia*."

In Hawker's 'Instructions to Young Sportsmen' (pp. 297, 298), the form of a gamekeeper's deputation from a Lord of the Manor gives him power, among other things, to seize guns &c., "trammels, low-bells, hays, or other nets."



W. Walton del.

M. & N. Hankart imp.

TAKING BIRDS WITH THE LOW-BELL, IN THE OLDEN TIME

Fig. 1.



"A TUNNELLING NETT FOR PARTRIDGE."
1678.

Fig. 2.



"A PANTIERE NETT."
1678.

Mr. J. E. Harting, in 'Ornithology of Shakespeare' (pp. 157, 158), gives an excerpt from Markham's 'Hunger's Prevention' (1600), on bat-fowling:—

"First, there shall be one to carry the cresset of fire [the cresset light was a large lanthorn placed upon a long pole, and carried on men's shoulders—see Strutt's 'Sports and Pastimes,' introduction], as was showed for the low-bell." Here follows an account of how you are to beat the bushes, "which done, you shall see the birds which are raysed, to flye and play about the lights and flames of the fier; for it is their nature through their amazednesse and affright at the strangenes of the light and the extreame darknesse round about it, not to depart from it, but as it were almost to scorch their wings in the same."

This is a curious notion about the sound of the bell; but it accords with the experience of the French Lark-catchers, who have an old tradition that they are most fortunate on All Saints' and Christmas Eve because the ringing of the church-bells so annoys the birds that they do not know where they are flying. This is outside Paris.

We find something of the same sort in fish; for Jonathan Couch, in his 'History of Fishes' (vol. iv. p. 38), says of the Lake-Bream (*Abramis brama*, Yarrell):—"This Bream is considered a very shy fish; and as their ordinary habit is to swim in shoals, Nilsson informs us that in the season when the fishery is carried on in Sweden, in some of the parishes near the lake where these fish abound it is forbidden to ring the church-bells, that the noise may not drive the fish away."

Again, Yarrell says ('British Fishes,' vol. i. p. 316) of the Golden Carp (*Cyprinus auratus*, Linn.):—"The Chinese call their fish with a whistle to receive their food. I think it was Sir Joseph Banks who used to collect his fish by sounding a bell; and Carew, the Cornish historian, brought his grey mullet together to be fed by a noise made with two sticks." This was in a

pond of salt water, in which he kept these fish. Orpheus himself could do little more.

Every muffin-boy personates Orpheus ; for when he rings violently, the curs all run to him and begin to howl. Many dogs do this at the sound of church-bells also.

As regards the flame with the bell, we have heard of burning the water for large fish, which is done on the same principle.

The other figure in the lithograph carries in his hand a birding-piece, which, Mrs. Ford tells Falstaff, was always discharged up the chimney. Mr. Harting, in 'Ornithology of Shakespeare' (p. 165), has an illustration of such a gun.

With respect to the effect of light on birds, Mr. H. Stevenson, in 'Birds of Norfolk,' vol. ii. p. 77, says, "Netting Dotterel was a source of profit to the fowler," and in a note—"For the old method of taking Dotterel by night, with a net and lanthorn, see 'The Wild-Fowler,' by H. C. Folkard." Also (p. 84, note), from Camden's 'Britannia' (Holland's translation, 1637—the same passage occurring as well in the Latin edition, 1607):—"Dotterels, so named of their dotish foolishnesse, which being a kind of birds as it were of an apish kinde, ready to imitate what they see done, are caught by candle-light according to fowler's gesture."

In the same way the Lark-glass produces its effects ; for it is only when the sun shines upon it, that it attracts the birds (*cf.* Ornith. Misc. vol. i. p. 89).

In the present day there are four kinds of nets used in Sussex. The drag-net, for dragging the stubbles &c. at night, is too well known to need

description. In addition, there are two nets with strings :—one (not much used now) which was shot over the birds on the ground—a clumsy contrivance; the other the common clap-net. This appears to be certainly as old as 1678, because it is figured in Willughby at that date; perhaps it would be found much earlier if search were made; but the small dimensions of the engines then used were nothing to the powerful implements now employed by Sussex birdcatchers. I am informed that the rise of this kind of thing took place only about eighty years ago; and effective clap-nets were set going by a Frenchman (round Brighton, at least) somewhere about that time.

In the 4th edition of Yarrell (part x. vol. ii. p. 159) an account of this mode of capture can be read, and the vignette so familiar to us all appears.

Another kind of net is sometimes used across brooks and ditches, made of silk, with a mesh about $\frac{3}{4}$ of an inch square, and when set cannot be seen. The one I measured was 8 feet 9 inches long by 3 feet 7 inches in depth. In front and at the back are two more, made of glover's thread, with a large mesh 6 inches square; so that, in fact, there are three surfaces of nets together. But the small-meshed or centre one is much looser than the others, and can be laid in a bunch on the top line or rope; and the whole contrivance is such that if any bird strikes against it, either going up the ditch or down, it falls into a pocket and cannot escape. The colour of all three is dark brown, and quite invisible.

This catches every feather which passes by; none can escape.

The bat-fowling net, also figured in Yarrell, is not used round Brighton, as there are no bushes or trees.

The above are contrivances to catch land-birds. Mr. Henry Stevenson, in 'Birds of Norfolk,' vol. ii. pp. 111 *et seq.*, has the following on

“Plover-Netting in the Fens.”

“The birds so taken are principally Dunlins, Knots, Ruffs* and Reeves, Redshanks, Lapwings, Golden Plover, and occasionally Curlews and Black and Bar-tailed Godwits. On one occasion within the last twelve years a small flock of nine Dusky Sandpipers or Spotted Redshanks (*Totanus fuscus*) was so obtained, and I purchased them alive.

“The nets are brought into requisition at Michaelmas (September and October) and Lady-day (March and April), at which periods the birds visit the washes. I personally know one fowler who has taken as many as four dozen and nine Lapwings at one time, and twenty-four dozen in the course of a single day.

“Guyhirn and Whittlesea Washes were at one time periodically flooded; and many varieties of wildfowl visited them.” An artificial method is now used, “by means of a ‘slacker,’ or small sluice, through which water is admitted, and an area of eight to twelve acres is thus covered with water from six to eight inches in depth. In one portion of this lake the fowler constructs a small island, about thirty-six feet in length and from four to five feet in breadth. Upon this his net is spread, which is stained the colour of the ground, and its meshes proportioned to the size of the birds he is likely to take, some nets having meshes one and a half inch, and others three inches in size. The fowler keeps some live ‘decoy’ birds (Lapwings or Ruffs) and a dozen stuffed skins or ‘stales;’ and these are placed on the island, close outside the range of the net. The living birds being tethered, are made to flutter their wings, whilst the fowler with a whistle imitates the call of the birds on the Wash; they are thus tempted to alight on the island, and are ultimately captured. The net covering the surface is so arranged that the fowler (who sits at a distance of two hundred yards), by means of a string

* The Rev. Richard Lubbock, in ‘Fauna of Norfolk,’ p. 68, says of young Ruffs:—“Nets were never used to take these birds in Norfolk.”

attached to pulleys, throws over the net, and the birds are jerked into the water and covered by it."

Here follows a description of the net.

The above was written some time ago ; but the practice still continues, and Thomas B. Pridmore states to me on this subject as follows (February 24th, 1877) :—

"I have caught Plovers [*i. e.* Lapwings (*Vanellus cristatus*)] for fifty years, my father did so for sixty years, at Whittlesea Wash. They are caught by land, and also by water ; they are better taken by the latter. We place the net on a hill surrounded with water about five inches deep, and use stuffed decoy-birds, about ten in number, and one living bird.

"We sometimes catch from three to four dozen at a pull. The net is 25 yards long and 8 yards deep, and the mesh $2\frac{3}{4}$ inches square. This is for land-work. For water it is 10 yards long and 4 yards deep. We place ourselves one hundred and forty yards from the net, sheltered with reeds tied on to rods to hide us. When the Plovers come down upon the hill we pull the net over them ; it is set with 'spring shavers.'

"London is the best market. They make from 4s. to 15s. per dozen, according to the season ; last week they made 14s. We catch from sunrise to sunset.

"There are now one hundred Plovers for every one there was fifty years ago*. The hill is four feet wide, and from ten to fifteen yards long, one inch above the water.

"Plovers are now thus caught in Thorney fen, Wisbech fen, Bassen-

* It is with pleasure that I am here able to record my opinion that the Lapwing is not only holding its own among the birds of Great Britain, but is becoming more numerous in some parts. Thomas B. Pridmore, a good authority, alludes to this great increase since his father's time in the fen-district. On the south coast we find the same ; and from other quarters I receive confirmation of this circumstance.

I say with pleasure ; for the Scotch naturalist, Thomas Edward, in his life by Samuel Smiles,

hally-Moor fen (flooded during the last three years), Glassmore fen, Peterborough Wash, Stanground Wash, Guyhirn Wash, Crowland Wash, Fosdyke Cowbit Wash [pronounced 'cubbet'], and at this place, Whittlesea Wash, which is not near the mere, but about half a mile from Whittlesea. We get a few Stints, Ruffs and Reeves, Curlews, and Sea-Gulls.

"I wear high water-boots, oil-cloth coat, and woollen shirt. We always set to pull over against the wind. The decoy-birds sit on hills one foot across and two inches above the water at the head of the net. When we see any Plover a quarter of a mile off, or perhaps more, if the sun shines on the decoy-bird, we pull the string which is fastened to his leg, and the bird opens its wings. The Plovers then come direct to the net, and fly very low over it. When they are all passed and clear, the string is pulled again, and, the decoy opening its wings, the Plovers think some of the party behind have begun to settle. Then they turn back, meeting the wind, which they always do, and try to drop near the decoy-bird; but finding the water too

remarks (p. 408) concerning *Vanellus cristatus*:—"Of all our field- and heath-birds the Lapwing is one of the most useful in destroying destructive insects, such as *Zabrus gibbus* &c."

Well did Edward, the cobbler of Banff, deserve the Royal bounty! Though different in idea from his brother craftsman of the blue Franconian mountains, in that Nuremberg where "Hans Sachs, the cobbler poet, laureate of the gentle craft, Wisest of the Twelve Wise Masters, in huge folios sang and laughed," yet Her Majesty saw in him, and rewarded, "the nobility of labour, the long pedigree of toil."

Turning, however, from Nuremberg to Whittlesea Wash, though the Lapwing has increased, many other birds have decreased, particularly wild Geese. Twenty-five years ago or so, Pridmore says, "our fens were covered with them—so much so, that boys were hired to keep them off the young wheat, as they would eat almost the whole off. Glassmore Fen and Thorney Fen were wonderful places for them. They would come into our Wash [*i. e.* Whittlesea Wash], and sit on the water. Fifteen or twenty have been killed at one discharge by two men with guns, which is called 'double shooting;' many were also knocked over in the daytime, with stalking-horses. Very few come in our part now."

These things are ended in England; they are as old as the time of the Greek slave, common in his day; and who does not remember, in the fable of Æsop, "The husbandman pitched a net in his fields to take the Cranes and Geese which came to feed upon the new-sown corn," &c.?

deep, they draw onto the hill and are covered with the net. When the water-nets are set, every thing is under water except the decoy-birds standing on their little hills; but with the land-nets all is visible. Several years back a white Plover came, but went away again.

“We used to catch at the beginning of October and in spring; but by the act now passed, we may not catch after February 15th. I used to take a great number when they were returning to the north, until the middle of April. My nets are now removed, and the lines put into a dressing of tar to preserve them.”

The Act which has put a stop to the Plover-catcher's trade is thus mentioned in ‘The Times,’ Friday, February 16th, 1877:—

“WILD FOWL PRESERVATION ACT.—To-day (Friday) the Wild Fowl Preservation Act of 1876, passed last July, comes into operation. This measure extends the operation of the Wild Bird Protection Act of 1872 in respect of certain of the birds named in that Act which in the new Act are called ‘wild fowl.’ The Act of 1872 protected certain wild birds named (78 in number) during the breeding-season, which was fixed as from March 13th to August 18th. The Act of last Session alters that period of protection to the time between February 15th and July 10th, in respect to the following birds:—Avocet, Curlew, Dotterel, Dunbird, Dunlin, Godart, Greenshank, Lapwing, Mallard, Oxbird, Phalarope, Peewit, Plover, Plover's Page, Pochard, Purre, Redshank, Reeve or Ruff, Sea-Lark, Sanderling, Sandpiper, Shoveller, Snipe, Spoonbill, Stint, Stone-Curlew, Stonehatch, Summer Snipe, Teal, Thick-knee, Whaup, Whimbrel, Widgeon, Wild Duck, Wild Goose, and Woodcock. Any person taking or wounding or attempting to take the above birds between the dates named, or having them in his possession, shall, on conviction, be fined £1 for each bird, with costs.”

There have been three Acts of Parliament relating to this subject:—

<i>The Sea-Birds Preservation Act</i>	. (32 & 33 Victoria)	. June 24th, 1869	. (ch. 17).
<i>The Wild Birds Protection Act</i>	. (35 & 36 Victoria)	. Aug. 10th, 1872	. (ch. 78).
<i>The Wild Fowl Preservation Act</i>	. (39 & 40 Victoria)	. July 24th, 1876	. (ch. 29).

The last has ended Plover-catching in spring.



QUAIL-CALL, AS USED IN THE HUNTINGDONSHIRE FENS.

Circa 1830. Actual size.

Netting Quails in the Fens.

The modern method, as pursued by Thomas B. Pridmore round Whittlesea, from about 1830 to about 1865, is as follows:—

In April, May, June, and July, in the morning or evening, in the corn-fields, you spread a net made of thread, with mesh $1\frac{1}{4}$ inch, ten yards square, on the top of the corn, and on the side that the wind will carry the sound of your pipe to the birds. You then get into the centre of the net, and lie down. For this sport you must be provided with two calls—a loud one and a low one. The call for the low note is 8 inches long, and made of a goose's leg-bone $2\frac{1}{2}$ inches long, with two holes in it besides those at each end; the rest of the call is made of leather about $2\frac{3}{4}$ inches long, with an end of wood. The goose-bone pipe fits into the elastic leather, by compression of which the sound is produced. The call is very much like the noise made by a cricket; and the Quail's note is stated to be "*wet-ma-lip*."

When the fowler is under his net, he sounds his loud call, with about two seconds between each, and the Quails come flying and settle about ten or fifteen yards off. They cry "*wet-ma-lip*" and "*bow-bow*." At this time the low call is sounded, and the birds run so near that they can be caught by the hand. The sportsman then rises suddenly, and the Quails fly up against the net and are captured.

They were put into a basket, and fed with wheat, in boxes made with laths, with straw divisions, to prevent fighting, and sent to London alive by coach, where they fetched a high price.

This sport is now quite at an end, and the Quails are gone.

With reference to the above-mentioned cry &c., Lieut.-Col. L. Howard L. Irby says (in 'Ornithology of the Straits of Gibraltar,' p. 139):—

"In summer Quail are universally distributed all over the cultivated country; vast numbers are caught in the spring with small nets, by the aid of the 'Quail-call' (*pitillo*). The birds begin to call their love-note about

the 9th of March; after that time their '*quit que-twit*' is to be heard on every side as long as the nesting-season lasts."

Pridmore's description of how to work the call is as follows:—

"Place the string in your left hand and your thumb tight at the end of the wood and your hand firm against your left side. Take hold of the pipe with the right hand, with the thumb just below the bottom of the hole of the pipe, with the first finger underneath; then jerk it up and down sharp; and by practice you will make a sound very like a cricket. This is the low note. When the Quails are very near, it should be struck as low as possible."

He adds:—"I have seldom caught more than from twelve to fifteen in a day, as you must go from field to field; for they are scattered about, and do not keep together."

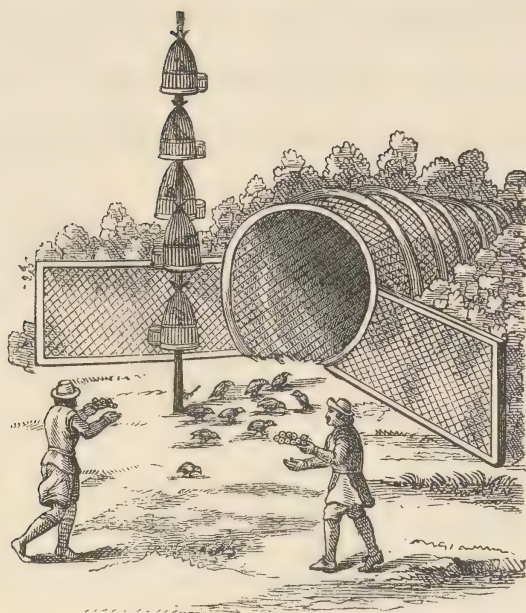
The woodcut is taken from the call for the low note, presented to me by Pridmore; and he never knew it fail. I preserve it as a relic of past days.

Willughby says (in his '*Ornithology*,' 1678), as to the mode then in use in Italy:—

The net "is called '*Butrio*' or '*Cuculo*.'" They pitch it "just before the tunnel of the net, with two poles, with five cages hanging upon each, having live Quails in them, which serve to call and entice the wild ones. Before the net they cast millet or panic seed. To drive them forward a man walks on each side of the net, with a jingling instrument ('*Sonagliera*') in his hand, first one, then the other, sounding from hand to hand."

This is done before day, and, if the moon shines, at any time at night.

Fig. 3.



"TUNNELLING FOR QUAILS."

1678.

Mr. Stevenson, in 'Birds of Norfolk' (vol. ii. pp. 376, 377), thus describes the capture of sea-fowl:—

"On the flat shores of the Wash, at the mouth of the estuary, long nets, some six or seven feet deep, are stretched upright on poles, somewhere about high-water mark; and the birds, in their nocturnal flight, strike the nets, and, becoming entangled in the meshes, are taken alive in the morning. Some, however, are occasionally drowned, should the tide rise higher than is expected or the nets be placed beyond a certain level on the ooze.

"The meshes are large; so that various Gulls and wildfowl are caught by them. But the smaller *Tringæ*, and even Larks, are taken in some quantities, being entangled by their struggles. I have heard of as many as sixty Dunlins having been secured at one haul—and on one occasion as many as one hundred and forty head, principally Sea-Gulls."

Mr. Stevenson, in a note, gives the following list of captured species:—

"Owls, Larks, Golden and Grey Plovers, Curlews, Redshanks, Bar-tailed

Godwits, Woodcocks, Knots, Dunlins, Oystercatchers, Storm-Petrels, Shell-Ducks, Wild Ducks, Widgeons, and Teal, together with Black-headed, Kittiwake, Common, Herring-, and Great Black-backed Gulls.

“The Pectoral Sandpiper described as netted by Hornigold, near Lynn, was, I understand, taken in this manner.

“At Holme, near Hunstanton, Mr. A. W. Partridge, of Thetford, has been also successful with these long nets (some seven feet in depth, and raised three feet from the ground), but has there ranged them on the seaward side of the broad tidal basin, which I have before described as a favourite resort of the shore-birds at low water.

“A somewhat similar method is adopted at Morecambe Bay, as Mr. J. H. Gurney informs me; but the nets, of a like description, are set on the sea-walls during dark nights.”

Sir John Lubbock mentions (‘Prehistoric Times,’ 3rd edit. 1872, p. 557) that “the northern tribes visited by Kane caught large numbers of birds, especially Little Auks, in small nets resembling landing-nets, with ivory handles; yet this people were entirely ignorant of fishing.”

The Little Auk (*Alca alle*) does not appear in the above list of captured species.

In ‘Rambles of a Naturalist,’ Mr. J. H. Gurney, Jun., has an article on netting sea-birds on the Wash. He says Mr. F. J. Cresswell, of Lynn, has carried this “to perfection;” and I am much indebted to his kindness in allowing me to have drawings of his nets, and to Mr. J. H. Gurney for his good offices in obtaining permission.

Before, however, describing the lithographs of the sketches, it may be best to hear what Mr. J. H. Gurney, Jun., tells us. This was the result on the 18th of December, 1862:—

“ Woodcock	1
Curlew	3
Knot	15
Golden Plover	3
Grey Plover	3
Bar-tailed Godwit	1
Redshank	1
Oystercatcher	2
Dunlin	34
Gulls of different species, including the Greater Black-backed .	17
Total	80.”

This was on “a pitch-dark, blustering night ; and the catch was good.”
 “Next night, which was calmer,” “about 40 Plover, Curlew, &c. were taken.”

Again, he selects a day (or, rather, night) from Mr. Cresswell’s game-book :—

“ December 1st, 1869.—Dunlin	40
Knot	19
Grebe	1
Guillemot	1
Razor-bill	1
Gulls	5
Golden Plover	1

“I suppose a high tide laid the nets under water, which would account for the diving birds. Coots are now and then caught in the same way.

“Thirty-six Knots have been taken in one night, and on one occasion sixty Oystercatchers and nothing else ; but the best haul was seven Grey Geese at one swoop, which rolled themselves up in one little bit of net into such a ball that it had to be cut to pieces to get them out,”—a good prize, but not quite a fenman’s dowry, viz. threescore Geese and a pelt, a pelt being a sheepskin, worn as an outside garment.

Mr. Gurney goes on to say :—

“ With Mr. Creswell’s permission, I will give the total takes for eleven consecutive years :—

“ 1859	132 birds.
1860	292 „
1861	192 „
1862	313 „
1863	267 „
1864 }	493 „
1865 }	
1866	614 „
1867	631 „
1868	486 „
1869	273 „

“ The nets, which are about five feet high, are generally placed at high-water mark. All of them together reach at least a third of a mile. They are fatal to every thing between a Lark and a Shelduck.”

DESCRIPTION OF THE ILLUSTRATIONS.

“ There is a tide in the affairs of men,
Which, taken at the flood, leads on to fortune ”—

a fortunate supply of Ducks &c. no doubt.

In Lincolnshire the people call particular tides “ bird-tides ;” not because they destroy birds, but the reverse. Pishey Thompson tells the tale (‘ History of Boston,’ edit. 1856, p. 367) thus :—

“ A singular circumstance has long been noticed respecting certain tides in the Witham and the Welland, called ‘ bird-tides.’ These occur annually, about Midsummer, and are almost always much lower than any others throughout the year, leaving the green marshes on the borders of these

rivers free from any visitation of the tidal waters, although they are mostly more or less covered by the spring tides at all other seasons. The occurrence of these low tides about the time when the numerous sea- and land-birds that frequent these marshes are hatching their eggs there, thus giving them time to perfect that operation without the destructive intervention of the salt water, has caused the country-people to say that '*the tides are lower at that season in order that the birds may hatch and raise their young.*' No doubt the success of the latter operation is secured by the smallness of these tides; and perhaps an adequate cause for their usual regular occurrence may be found in the almost entire absence of high winds, and a prevalence of calm sultry weather at the annual period of the bird-tides. These small tides are noticeable, we believe, very generally throughout the borders of the estuary."

With reference to the illustrations, the time to work these sea-nets is not so much when the moon is waxing, but when she wanes, or, at least, in the first and last quarters; in fact, he who pursues this sport does not "delight in a shiny night:" few birds, or none, are caught in moonlight nights.

This corresponds with the experience of old Thomas Trangmar, the lark-catcher, with a drag-net, whose evidence to me (February 5th, 1875, at 1 o'clock P.M.) is so interesting that I must quote it:—

"I have been a lark-catcher twenty-five years. I am just out of bed. I caught 6½ dozen last night. Dark, cloudy, still nights are best; when cloudy, there is no dew. If their tails are wet, they do not sit well; and the dew wets them. It is very hard work in rainy times, tremendous; the net is heavy. I sleep in the day, and start sometimes at three o'clock in the afternoon, and go off from Brighton to Newhaven, perhaps. I have known 100 dozen caught after snow. They feed on rape, cabbage, &c.; and then the poulterers will not have them."

Midnight exposure by land or sea brings hardship with it ; and it requires other than a drawing-room man "to be anchored half a night among the chilling winds in a creek."

Having heard from Mr. Cresswell that "next darks" the nets would be set, I waited the result. A great deal depends upon the weather, and the position taken. The aim is always at high-water mark ; but as the tides are very uncertain, and are often either pinched or swollen by a change of wind or other causes, it is difficult to determine the proper place, which is below rather than above ; thus birds sometimes drown with the rising tide.

Of late years much land has been reclaimed from the sea, which diminishes the supply of wildfowl and prevents any great success. About three hundred were taken in 1876—among them two Owls, quite uninjured, which were allowed to go free. Once, a fine flatfish was caught, and a wooden doll, the nets having been partly under water, owing to an unexpected high tide.

On the 16th of December, 1876, Mr. Henry Baines, the artist, started about 8 o'clock A.M., and worked all day. The morning was hazy, without distinct forms of clouds, with a slight breeze from the southward. The nets were pitched on the flats or sands below Terrington Marsh, about six miles N.W. or N.W. by N. from King's Lynn (that Mother of the Fens), in Norfolk, but close to the Lincolnshire border.

In stormy nights sometimes as many fowl as the men could carry were found in one length of net (thirty yards).

The artist, I am told, had about six miles of very bad road to traverse, along a sea-bank, before he could reach the spot, and suffered a good deal

from cold while sketching. The whole value of the thing is, of course, its reality and truth, both of which we have here.

On the 15th (the night before) the moon had quite withdrawn her countenance, which, though often veiled, is always unchanged.

About 2000 yards of net are set, not all in one length, but mostly four or five lengths together, and in angles or curves, with guies at the extremities to keep it well extended, which guies are put to windward when it blows hard, say one to each net.

Mr. Cresswell's yacht, the 'Old Dutchman,' from which Castle Rising can be seen in a clear day, appears in the longest sketch; while the two Hornigolds (both Henry, father and son), each armed with his "mesh-cleaner," are about to secure the booty. The son is dressed in his "dimity," as he calls his white canvas suit*, with bag of the same stuff, sou'-wester, and boots coming well up to the hips. The men use "a picker," or iron hook, about 3 inches long, to extricate the birds from the tangle in which they are sometimes firmly fixed.

The "mesh-cleaners" are bits of wood, bent into a loop, with the ends rivetted together, and are used to clear the net of any sea-weed and rubbish, coarse grass or samphire, that may have been washed in by an unexpected high tide. In very cold weather, when the hands become what is called in Norfolk "wooden," these are very useful.

* P. Hawker says, in 'Instructions to Young Sportsmen,' on shooting (p. 239) :—

"N.B.—All punts and canoes for such purposes (as well as the dress of the shooter) should be *white*, by which they become *less visible* on the water."

Again (p. 226) :—"As appearing in white is at all times necessary when on the water (except in very clear moonlight nights) . . . cover an old hat with canvas, and paint it white."

Again (p. 232) :—"Nothing sooner shies fowl than a *black hat*."

Every part of the sketches is exact and real, except one—the birds on the wing. Mr. Keulemans, at my request, put those in, as the long space up above looked bad without something. The value of these things depends upon their truth. The figures are portraits, and the details faithful.

The old man, Henry Hornigold, has been in Mr. Cresswell's service more than twenty years, and is one of a family in that part of Norfolk the members of which chiefly get their living by shooting or fishing. He says, in fine weather the sea-fowl fly high, and that dark squally nights are most favourable for catching, as they then travel low. This accords with my own experience on this coast. It is a mistake to suppose that even little birds always migrate high up; they frequently come close over the waves. In fact, they have a much stronger atmospheric sensibility than we imagine.

My belief is that, if a man lived in the forest a wild life, this faculty in him would be sharpened. And even now, how often do we hear people say, "I know there will be thunder; it always gives me a headache;" and thunder it does.

But however that may be, if the reader is sitting (as is the writer) alone, on a wintry night in January, with the rain descending in torrents, the wind howling outside, on the sea-shore of the south of England, within a mile of the melancholy remains of a fatal wreck, he is then in a fit condition to enter into these drawings of "*Netting Sea-fowl on the shores of the Wash.*"

He may in imagination hear the whistle of the approaching Widgeon, the likeness to a storm in the rapidly flying Ox-birds, the shrill-sounding pinions of the wild Ducks; and, lastly, in the language of Hawker, "the mournful notes of the Plover, with the roar of the bursting surge and the discordant screams of sea-fowl," may strike upon his fancy, as at this moment they in reality do upon my ear.

But, yes—he must be a lover of such things, and not reposing on a summer day, under a hot sun, smoking his pipe, or taking his ease. If so, it is in vain to place such matters before him, and I shall have failed in my attempt to please, in which case “the Wash” will turn out to me as ill-omened a scene as ever it proved to the weary eyes of that most imbecile of our Norman kings.

I have to thank Mr. Gurney for his kind help in obtaining from Mr. Cresswell permission to draw these nets, the property of the latter, to whom I am bound to express my obligations for the trouble taken on my behalf, and the assistance bestowed.



VESSELS IN THE LYNN CHANNEL.

EACH NET 30 YARDS LONG—POLES 15 YARDS APART AND 6 FEET HIGH MESH 4 INCHES SQUARE.
TERRINGTON MARSH.

CASTLE RISING.

POINT OF CREEK.

THE ADMIRALS JETTY.

TRAFALGAR SEA BANK PREVENTIVE MANS HOUSE

NETTING SEA-POWL ON THE CHORES OF THE WASH DEC 16 1876



SPRING TIDES COVER THESE FLATS TO THE DEPTH OF 2 OR 3 FEET.
TERRINGTON MARSH.

HENRY HORNIGOLD SEN^R

HENRY HORNIGOLD JUN^R

HOUSES BEHIND SEA BANK. PREVENTIVE MANS HOUSE.

NETTING SEA-FOWL ON THE SHORES OF THE WASH.
Dec. 16. 1876.



KNOT.

CURLEW.

STINT.

NETTING SEA FOWL, ON THE SHORES OF THE WASH. DEC. 16. 1876.

CURLEW.

BOTTOM LINE
OF
NET.

1676

M&N.Hanhart imp.



J. Smit del.

Hanhart imp.

1. LORICULUS AURANTIIFRONS, ♀.
2, 3. LORICULUS TENER, ♀

ON
A RECENT ADDITION
TO THE SPECIES OF
THE GENUS LORICULUS.

By P. L. SCLATER, M.A., PH.D., F.R.S.

(Plate LXXII.)

IN the Seventh Part of the 'Ornithological Miscellany' Dr. Meyer has given an excellent summary of the species of the genus *Loriculus* as then known to him, and a geographical table of their range and distribution. As it happens that I have lately had the pleasure of describing a new member of this elegant group of little Parrots from a country outside the area over which it was known to Dr. Meyer to extend, and as the use of Mr. Smit's services has been offered me by Mr. Rowley to add to the series of beautiful illustrations which he has already given us of these birds, I have resolved to take advantage of Mr. Rowley's liberality, and to make a short addition to his notes on this subject.

In the fine collection of birds made by the Rev. George Brown, C.M.Z.S., on Duke-of-York Island and on the adjoining parts of New Britain and New Ireland, was a single specimen of a *Loriculus* which, in my recently published article on this collection (P.Z.S. 1877, p. 107), I described as follows :—

“*LORICULUS TENER*, sp. nov.

“*Fem.* Clare viridis fere unicolor, uropygio et caudæ tectricibus superioribus flavicantibus: macula gutturali rubra: remigibus et rectricibus nigris, extus dorso concoloribus, in pagina inferiore læte cæruleis: rectricum ipsis apicibus flavicantibus: rostro nigro: pedibus fuscis: long. tot. 3·8, alæ 2·7, caudæ 1·2.

“*Hab.* Duke-of-York Island (Nov. 1875).

“Unfortunately there is only a single example of this diminutive *Loriculus* in the collection. It would seem to be nearest to *L. aurantiifrons* of Schlegel (Nederl. Tijdschr. iv. p. 9), but has not the red rump, which, so far as I can tell from Schlegel's description, is present in both sexes of that species.

“Salvadori (Ann. Mus. Civ. Gen. vii. p. 912) and Meyer (Sitzungsb. Isis, 1875, p. 78) both record the occurrence of *L. aurantiifrons* in New Guinea, it having been originally described from Mysol. It is the only species of the genus yet known to be found there.”

I have now a few additional remarks to offer upon this subject:—

Prof. Salvadori, as I have already stated in a footnote to my paper above referred to, has most kindly sent me for examination, from the Museum of Turin, the example of the female of *L. aurantiifrons* which was obtained by Bruijn's hunters at Andai in May 1875. The red rump is most unmistakably present; and whether my example of *L. tener* be male or female, the species is certainly distinct from *L. aurantiifrons*.

In the accompanying Plate fig. 1 represents this specimen of *L. aurantiifrons*, whilst in figs. 2 and 3 are given views of the type of *L. tener*. The differences will be obvious on comparison.

The discovery of *L. tener* in Duke-of-York Island extends the range of this group of Parrots further to the eastward than is given in Dr. Meyer's geographical table (*anted*, p. 234).

It was, however, quite to be expected that *Loriculus*, as it occurs in New Guinea, would further extend to New Britain, Duke-of-York Island, and New Ireland, since, as is now well known, there can be no question that all these islands are, zoologically, outliers of the Papuan subregion.

pl. 9, July 1877

THE BIRDS
OF
MONGOLIA, THE TANGUT COUNTRY,
AND THE
SOLITUDES OF NORTHERN TIBET.

BY LIEUT.-COL. N. PRJEVALSKY.

[Continued from p. 320.]

Order IV. COLUMBÆ.

187. COLUMBA RUPESTRIS, Pall. *Golub gornoy*.

Bonaparte, Iconographie des Pigeons, pl. lxxv.

With the exception of the northern portion of Tibet, we met with *Columba rupestris* throughout the countries traversed by us, principally on the rocky mountains and in Kan-su, even up to an altitude of 12,000 feet above the level of the sea. It is common on the clayey cliffs of the Mongolian steppes; and we only found there the present species, and not the common Chinese *C. livia*, which does not occur in Mongolia at all.

In spring and autumn *C. rupestris* forms sometimes large flocks.

On the Ussuri this Pigeon is common, and tolerably so on the coasts of the Japanese Sea.

188. COLUMBA LEUCONOTA, Vig. *Golub belospeenney*.

Gould, Century of Birds, pl. lix.

This Himalayan species was found by us in the Kan-su mountains, where it inhabits solely the alpine regions, at a height of from 10,000 to 13,000 feet, and even there only the most unapproachable and desolate rocks, which it leaves in the morning in search of food on the alpine meadows; and at such times we have seen them near some Tangut villages. It very carefully avoids woods, and never sits on trees.

They keep, as a rule, in pairs; but small flocks of from five to fifteen have been noticed by us in spring and autumn. Each pair separately, or two or even three together, choose a large unapproachable rock for nesting, where they build, in cracks. During the pairing the male pays a great deal of attention to the female, occasionally flying up and clapping its wings like our common Pigeon; and having described a circle, it again sits down close to its mate. This lasts from the end of April until the middle of June.

Its flight is strong and straight; and when flying a peculiar whistling noise is produced by the quills.

Contrary to *C. rupestris*, the present species is extremely shy; and it appears to change this disposition only in the neighbourhood of Tangut villages.

It is not very common in Kan-su; and I do not know if it leaves this locality for the winter, as we had no occasion to be there during the cold season. But in the latter part of April, when we arrived at Kan-su, these Pigeons were already pairing in the mornings, and were met with in small flocks, most probably as they arrived from migration.

The Kan-su mountains form its northern boundary.

Measurements:—

	Length.	Width.	Wing.	Tail.	Tarsus.	Gape.
	in.	in.	in.	in.	in.	in.
♂ . . .	14	27	9·8	5·35	1·08	0·96
♀ . . .	13·5	26	9·6	5·4	1·1	0·96

189. *TURTUR RUPICOLUS*, Pall.

Temminck, Pl. Col. pl. 550.

We came across this species in the Muni-ul mountains and in the Hoang-ho valley. Towards the end of August we took some unfledged young (always two in a nest), and on one occasion even two eggs.

It does not occur in Kan-su, Koko-nor, or Halha.

In Ussuri country its migration takes place late in March or early in April; and it breeds there in limited numbers in the small woods near rivers.

190. *TURTUR VITTICOLLIS*, Temm. *Gorlitza smejushtshayasia*.

Turtur duraca, Schlegel, Mus. P.-B. *Columbæ*, p. 123.

We met with it only in the park of the Ala-shan, chiefly in the town of Din-juan-in, and in Kan-su.

Our Mongolian specimens are a little larger than the measurements mentioned by Schlegel; and the same has been noticed in the specimens which were brought by Schrenck from the Amur.

Measurements of the male—length 13"—14"·3, width 19", wing 7"—7"·4, tail 5"·8—6"·45, tarsus 0"·84—0"·85, gape 0"·88—0"·92.

191. *TURTUR HUMILIS*, Temm.

Temminck, Les Pigeons, ii. pl. vii.

We only once met with these birds, about the middle of June, in the park of the Ala-shan. It was a pair; and apparently they were breeding there.

Order V. GALLINÆ.

192. SYRRHAPTES PARADOXUS, Pall. *Stepnaya kuritza*.

Gould, Birds of Asia, part xix. pl.

Is one of the most characteristic birds of Mongolia, inhabiting not only the steppes, but also the deserts. In summer they go north, even beyond Lake Baikal, where they breed, but spend the winter in the Gobi desert, in such localities as are free from snow, and in Ala-shan; and from the middle of October we constantly met with them there, sometimes in flocks of several thousands.

The principal food of these enormous flocks consists of the seeds of *Agriophyllum gobicum*; so that the number of the wintering birds depends upon the large or small crop of these seeds, although they occasionally feed also on other seeds and berries.

At sunrise they leave their roosting-places, and depart into the desert in search of food, flying very low, forming a line perpendicular to the direction they are going in.

The flight is very fast, the wings making a peculiar noise; and when a large flock is on the wing one can hear it from a considerable distance, the noise somewhat resembling the sighing of the wind. When in the air the male birds often utter a peculiar note, something like "*truck-turuck, truck-turuck*." I noticed, however, that they do not often call when in large flocks, but mostly when there are only a few individuals or single ones.

Occasionally these small flocks rise rather high in the air, individuals swooping down at intervals towards the ground, and again ascending, just as our migrating Rooks do.

At the feeding-place the whole flock sits down close, and, having formed a line, run forward very clumsily and slowly, taking short steps and waddling from side to side. The tracks which they leave on the ground very much resemble those of some small mammals, and cover, in endless series, the sandy Ala-shan deserts.

After their morning feed the flocks betake themselves to some well or salt lake to drink, apparently preferring the fresh to the salt water. At the drinking-place, as well as at the feeding-places, these birds never settle on the ground without first describing a circle, in order to assure themselves that there is no danger. On alighting they hastily drink, and rise again; and in cases where the flocks are large, the birds in front get up before those at the back have time to alight. They know their drinking-places very well, and very often go to them from distances of tens of miles, especially in the mornings, between 9 and 10 o'clock; but after 12 at noon they seldom visit these spots.

We also met with some wintering birds in the Hoang-ho valley, throughout S.E. Mongolia, and also about Kalgan; but when hard frost sets in, or much snow falls, these birds appear in large flocks in the vicinity of Peking and Tien-sin; but with the return of fine weather they again leave these localities for S.E. Mongolia. Altogether they fly about much more in winter than in summer, probably for the purpose of warming themselves. In spring some of them depart for the north of Mongolia and the basin of Lake Baikal, whilst the rest remain to breed at their old winter quarters.

The Sand-Grouse does not construct a nest at all, but deposits its eggs on the sand, sometimes without even making a hole in the ground; occasionally, however, a few grass-blades are used as a lining. In the beginning of June we found, in Ala-shan, three nests with three eggs in each: one set was quite fresh; but the two others were very much incubated. These eggs are remarkable for their regular elliptical shape, and are marked with reddish and brownish spots and streaks on a dirty yellowish-grey ground. Large diameter 1".57-1".64, small 1".3-1".8.

The female does not sit very closely, and leaves the eggs when approached within about twenty paces. During the breeding-season these birds fly also in large flocks to the drinking-places, leaving the eggs exposed to the air during their absence.

This Sand-Grouse is very cautious and shy, but is scarcely pursued by man at all; and although its plumage is very much like the ground of the desert,

the bird does not trust to that when in danger, but tries to escape by flight, rising before one can get within gunshot, and very seldom alights again in the immediate neighbourhood. *Falco hendersoni* is the only raptor that persecutes them; but even he cannot always catch them, as they are very quick.

We observed some specimens of *T. paradoxus* about Koko-nor and Tsaidam, but never in Kan-su or Northern Tibet.

193. SYRRHAPTES THIBETANUS, Gould. *Stepnaya kuritza Tibetskaya*.

Gould, Birds of Asia, part ii. pl.

We met with this Grouse at first in the Koko-nor steppes in autumn, usually in small flocks of from ten to thirty, but never saw such large numbers as of the preceding species, although we met with some flocks of about a hundred together in Northern Tibet.

At Koko-nor we usually found these birds on the sandy plains of the river Buchin-gol, feeding on the seeds of different grasses and beans. When eating they allow one to approach very close, and, even when shot at, fly seldom above a hundred yards before they go down again; and once I killed not less than twenty-two of this species in the course of half an hour. Sometimes, however, I found them rather shy.

When flying they often utter their note, sounding something like "*caga, caga, caga,*" and do not call on the ground. Their run is clumsy and slow, like that of *S. paradoxus*; and when moving they usually form a line side by side, and seldom flock.

We did not find them in Tsaidam, but obtained specimens in Northern Tibet, and there noticed their call at night when they were flying about the steppes. I cannot at all account for this strange behaviour, as, even if the flock was once flushed by a wild animal, it cannot have occurred so frequently, especially as the species is rather scarce in Northern Tibet.

The Koko-nor basin forms the northern and probably also the eastern limit of its geographical distribution.

194. PHASIANUS TORQUATUS, Gmel. *Fasan kolchatey*.

Elliott, Monograph of the Phasianidæ, ii. pl. v.

We met with this Pheasant north of Gu-bey-key, in Muni-ul, and along the northern bend of the Hoang-ho river. In the former locality they inhabit the wooded districts, usually in the vicinity of brooks, and do not ascend any mountains beyond 6500 feet above the level of the sea. In the Hoang-ho valley they keep in the thick groves near Chinese fields and habitations, and drink out of rain-pools or wells, there being only very few brooks and rivulets.

The courtship, in spring, is probably like that of our European Pheasant.

The calling of the male reminds one of the voice of a young Barn-door Fowl, and is followed by a flapping of the wings; it can be heard at a verst (two thirds of a mile) distance in clear weather. It usually pairs at the same place, choosing for that purpose the bushes or some little hill, but never a tree. After each call it remains silent for from five to fifteen minutes, according to the intensity of its excitement and the time of the day. Its calls are loudest and most frequent at sunrise and just before sunset. In spring, the pairing commences in the beginning of April and lasts until the end of June, when the males fight vigorously, just like our Barn-door Fowls, the conqueror pursuing the conquered bird until it is driven off. The hens usually keep close to the cocks, but do not utter any note, and can be seen in the daytime promenading in company with them. At that time these Pheasants are very wild and difficult to approach; whilst at all other seasons they are most easy to shoot with the aid of a dog or by waiting for them at their drinking-places. They can carry a great deal of shot, and, when hit, sometimes run so quickly on the ground that they cannot be hunted down.

Immediately the breeding-season is over, the males commence moulting, which lasts until October; and I have seen some which have lost all their tail-feathers at one time. In summer, we found in Ordos many families of from six to ten specimens, which were very various in size; and even

as late as August some young ones were observed which did not exceed a Ptarmigan in size ; and we found that generally Pheasants breed very late in Mongolia, and that the young grow slowly.

Whenever we saw a family of these Pheasants the old birds were present ; and the male bird seems to look as anxiously after the young as the hen, and on the approach of danger crows most vigorously, whilst the hen at once takes to wing and tries to attract the attention of the sportsman and his dog. The young always endeavour to save themselves by running, and do not separate from each other until late in the autumn.

In Ussuri country this Pheasant is commonest about Lake Hanka and the southern coasts of the Japanese Sea from Possiete Bay as far as St. Olga, and even further. They usually assemble in the neighbourhood of cultivated land, where they feed on all sorts of grain, and do not even reject young potatoes, which they swallow whole. In the oak-forests I shot Pheasants which had their crops full of peeled acorns ; and in autumn they usually get very fat in Ussuri country, which I did not notice at all in Mongolia. In Ussuri the breeding-season lasts until the end of June ; and we got young ones about this time and the beginning of July. The moult of the old birds lasts until the end of October.

195. PHASIANUS VLANGALII, n. sp.* *Fasan Vlangali.*

Capite et collo viridi-æneis ; occipite griseo-olivaceo, viridi micante ; cervice, dorsi parte antica scapularibusque rufescenti-auratis, prima maculis triangularibus viridi-æneis ornata ; tectricibus alarum cinereis, rhachibus plumarum albidis ; tergo et uropygio cinereis, viridi micantibus, primo squamulis fulvis, nigris viridibusque notato, secundo immaculato, lateribus vivide cinnamomeis ; pectore medio viridi-æneo ; abdomine fuliginoso, lateribus rufescenti-auratis, maculis transversis chalybeis ornatis ; cauda brunneo-rufescente, fasciis transversis nigris, fulvo limbatis, ornata ; remigibus griseo-brunneis, fulvescenti maculatis ; facie nuda, papillosa, ruberrima.

Fem. isabellina, nigro fulvoque varia, pectore et abdomine immaculatis.

* [*Phasianus vlangalii* is figured in plate xvi. of the original.—EDITOR OF O. M.]

Measurements :—

	Length.		Width.		Wing.		Tail.	
	in.	in.	in.	in.	in.	in.	in.	in.
♂ . .	32	34·5	28	29	9·8	10·2	18·5	20
♀ . .	24		26		8·7		10·7	

	Gape.		Tarsus.		Middle toe.	
	in.	in.	in.	in.	in.	in.
♂ . .	1·26	1·33	2·52	2·58	1·8	1·92
♀ . .	1·3		2·23		1·75	

Quills—4th=5th longest, 3rd<6th, 2nd<7th, first 0"·7 shorter than the second. The outer tail-feathers almost four fifths shorter than the central one. Culmen of the male light, the lower mandible dark horn-colour; tarsus brown; toes somewhat darker; iris light yellow.

Male.—Head and neck metallic green, with a blue tint on the nape; on the occiput is an olive-grey spot, and on the back of the neck a white line, reminding one of the commencement of a collar. The feathers above the ears are erect, forming something like horns. The lores, eyebrows, and cheeks are bare, covered with a rough red skin; under the eyes, at their back, there is a small blue spot. The back and shoulders are pale gold-brown, each feather, dark-brown at the base, being edged with golden, whilst nearer to the neck the bases of the feathers become black. The fore part of the back is marked with large triangular dark green spots at the tips of the feathers, which are also partly edged with this colour; the centre of the back and the shoulders are not spotted. The breast and rump are ashy grey, with a greenish shade, the former being marked with dark green scales, which are edged on the inner web with yellow and black; the feathers on the rump are not spotted, but towards the sides attain a rusty brown colour. The centre of the breast is bright dark green; its sides are reddish brown, with a metallic lustre, and the feathers have slightly marked greenish tips. The abdomen is of a

dark smoky colour, marked at the sides with green lines, which extend from the breast. The flanks are light brown, with blue spots occupying the tips of the feathers. The primaries are brown, with sandy-yellow outer webs; from the base up to two thirds of their length the inner webs are marked with triangular grey spots. The secondaries have light dirty-brown edges, pale tops, and pied webs. The upper wing-coverts are ashy grey, with a slight greenish tint and white shafts. The back, wing-coverts, and tertiaries have violet-brown spots on both webs. Under wing-coverts grey, sometimes with a yellow shade, with dark-brown cross bands. Tail light brown; the tail-feathers, with the exception of the four or five outer ones, have broad light-lilac tips, and are marked with black cross bands, which latter are again edged with pale yellow. The under tail-coverts are brown.

The *female* is very pale in coloration. The crown of the head is spotted with black; the lores, the wide lines under the eyes, and the narrow (hardly perceivable) eyebrows are white; and there is a spot of the same colour behind each ear. The throat is yellowish white. The neck and crop are shaded with rose-colour; the former is marked with narrow blackish cross bands, and the latter with horseshoe-shaped black spots. The feathers on the front part of the neck have a light-brown base, with black edges and greyish rose tip. The remaining upper parts of the body are marked with yellow streaks and black spots on a light-brown ground. The breast, abdomen, and vent are dull sandy yellow, without any markings. The flanks are of the same colour, but have indistinctly marked black cross bands. The quills have dark brown and reddish yellow bands; the large and middle upper wing-coverts are pale yellow, with black lines, which get duller towards the ends of the feathers; the small upper and the under wing-coverts are pale brown. The tail-feathers are light reddish brown, with close black bands, which latter are again intercepted by yellow lines.

I name this species after our Ambassador to China, Mr. M. E. Vlangali, to whose help our expedition and success is mostly due.

We found this bird in Tsaidam, where it inhabits the cane-groves and bush-covered localities. It principally feeds on berries in autumn and winter, which it eats sitting on the branches, and at that time especially is very wild and wary. It does not differ in voice from the preceding species, and begins to breed very early in spring. We have heard it as early as the 13th of February.

According to the statements of the natives, this Pheasant's range extends westwards as far as the Tsaidam marshes; eastwards its distribution is unknown; and the northern limit is formed by the Koko-nor mountain-chain.

[NOTE.—We are informed that Col. Prjevalsky has now reached Lob-Noz, Central Asia, whence he intends to penetrate to the northern slope of the Himalayas.—ED.]

[TO BE CONTINUED.]

PART X.

“ How often from the steep
Of echoing hill or thicket have we heard
Celestial voices to the midnight air,
Sole, or responsive each to other's note,
Singing their great Creator ! ”

MILTON : *Parad. L.* Book iv.





J.G. Keulemans lith

M&N Hanhart imp

MYIOLESTES MACRORHYNCHUS (*Layard.*) *sp. nov.*

THE BIRDS OF THE FIJI ISLANDS.

BY MR. G. D. ROWLEY.

[Continued from p. 39.]

MYIOLESTES* MACRORHYNCHUS (Layard), sp. nov.

(Plate LXXIII.)

MR. E. L. LAYARD says (Ibis, 1876, 3rd ser. vol. vi. p. 145):—

“This species, originally named by me from a specimen brought in a miserable condition by Mr. Liardet from Taviuni, replaces *M. vitiensis*, Hartl., in that island. It is not uncommon in the forest, roaming about in search of the insects on which it feeds. I never saw it on the ground; but I once shot it climbing up the trunk of a tree, and clinging to the bark, pecking like a Woodpecker at a decaying rotten limb. It is a thorough mocking-bird. The sexes do not differ. The edges of the basal portion of the upper, and on the major part of the lower mandible, are yellow, as is the inside of the bill and throat. This species affords another instance of variation as in *Platycercus*.

“The Ovalau bird, *Myiolestes vitiensis*, Hartl., is much smaller and lighter-coloured, and has always the tip of the tail almost white; but I have a specimen from Bua, in Vanua Levu, which seems intermediate. It is

* Th. *μυῖα*, a fly, and *ληστής*, a robber.

smaller than my *M. macrorhynchus*, paler, and with a well-developed red-brown tip to its tail. But I have a still more interesting bird from Fortuna Island, outside this group, 350 miles to the N.E. It is smaller than the Bua bird, and more like *M. vitiensis*; but the throat, chin, and breast are grey; the tails, though damaged, are evidently broadly tipped with white. I propose to separate the varieties, or species, as follows:—*M. vitiensis*, Hartl. (the type species); *M. buensis*, sp. nov.; *M. macrorhynchus* and *M. fortunæ*, sp. nov. Unfortunately I have not a specimen of *M. vitiensis* at hand; but I add the measurements as given in the ‘Ornithologie der Viti-Samoa- und Tonga-Inseln’ of Drs. Finsch and Hartlaub, wherein it is badly figured, the white of the tail-tip and the red of the vent being too prononcé. The measurements of the four species are as follows:—

	Long.		Al.		Caud.		Tars.	Rost.
	in.	lin.	in.	lin.	in.	lin.	lin.	lin.
“ <i>M. vitiensis</i>	6	6	3	1	2	8	8 $\frac{2}{3}$	7 $\frac{1}{2}$
<i>M. buensis</i>	6	6	3	3	3	4	11	13
<i>M. fortunæ</i>	6	6	3	1	3	3	11	9
<i>M. macrorhynchus</i> . .	7	6	3	4	3	9	13	14

“As will be seen, the bills of *M. buensis* and *M. macrorhynchus* much exceed the others in length, and are nearly twice as thick.”

The Plate is taken from a male in my possession, dated July 29th, 1875, by Mr. Layard, from Ngila, Taviuni. The food was insects. Beak bluish horn; legs blue; iris brown. Total length 6 $\frac{3}{4}$ inches.

The female bird, from the same source, resembles the male.



J. G. Keulemans hth

M. & N. Hanhart imp

PACHYCEPHALA TORQUATA. (Layard.) *sp. nov.*

PACHYCEPHALA TORQUATA (Layard), sp. nov.

(Plate LXXIV.)

Mr. E. L. Layard says (Ibis, 1876, 3rd ser. vol. vi. pp. 146, 147):—

“This, another new species, is not uncommon in the forests of Taviuni*—perhaps on account of its loud and varied voice betraying it oftener than that of other birds. If you listen attentively, you will probably hear a kind of running bass accompaniment of ‘purr purr.’ This comes from its mate, a little brown bird. The family are like the female, the very young ones being redder. As the young males grow up, the glorious yellow livery in which the adult rejoices is put on in patches, generally beginning with a yellow moustache on each side of the mouth.

“And now for a further inquiry into species or varieties. What are the four birds we have here (1. *Pachycephala gräffii*, Hartl.; 2. *P. vitiensis*, Gray; 3. *P. icteroides*, Peale; 4. *P. torquata*, Layard)? Are they species or varieties?

“As far as I know, my *P. torquata* is confined exclusively to Taviuni. The yellow of the underparts is extremely rich, and crossed by a broad black collar; the voice differs from all the others. *P. vitiensis* is much paler, and the throat paler still (Finsch and Hartlaub say ‘white;’ but I have not seen it so), and separated from the other yellow by a narrow black collar. It is found in Viti Levu, not elsewhere that I know of yet. *P. icteroides* has no collar, and is paler than either of the two last. I fancy some specimens look as if they were assuming collars, a few black spots appearing on the neck.

* [“Taviuni, or Somo-somo, as it is also called, from its chief town, is about twenty-five miles long, and of an average breadth of nine. The mountain-range which traverses it is covered with forest. Rain is constant.”—*Pearls of the Pacific*, by J. W. BODDAM-WHETHAM, p. 325.

“Suva, on the S. coast of Viti Levu, is the future capital of Fiji.”—*Times*, May 12th, 1877.

EDITOR OF O. M.]

It is found in Ovalau. *P. gräffii* has a yellow spot on each side of the forehead, beginning at the nostrils, and a yellow bar on the rump. Its underparts equal those of *P. torquata* in richness. It is found at Bua (Vanua Levu).

“My son said he saw a *Pachycephala* on the Rewa which was much lighter than *P. torquata*; probably it was *P. icteroides*, as he did not see any collar. He was so close to it that he refrained from firing, lest he should blow it to pieces. A native brought him a wonderful egg and nest; and on questioning him as to the parentage, he took him into the garden, and, pointing to a bright yellow flower, said the body was like that. We have no other bird of this colour; so I shall describe these eggs provisionally as those of this species.

“The nest is a loose structure of rootless fine twigs, stems of a fern, dried ferns, and leaves; about 6 inches across by 4 deep; diameter of cup about 3 inches.

“The egg is of a coffee-colour, lightest at the small end, darkest at the obtuse end, near which is a broad band of black. Axis 14^{'''}, diam. 9^{'''}. Surface polished.”

The Plate of the male is from a specimen of Mr. E. L. Layard's in my collection, taken at Taviuni, April 24th, 1875. Food, insects.

The female is from the same source, dated August 18th, 1875. Locality, Ngila, Taviuni, Fiji. Food, insects.

Both are size of life. Total length of male 7 inches, female 6 $\frac{1}{4}$ inches; but skins are not satisfactory for measurement.

SAXICOLA ŒNANTHE (*Linn.*).

(The Wheatear*.)

BY MR. G. D. ROWLEY.

(Plate LXXV.)

AFTER sitting for more than a quarter of a century on the shores of the sunny south coast, living among shepherds, one cannot help saying a word on the Wheatear. For if a person looks over the short turf of these downs in the second week in August, he will not fail to see certain lumps of earth, appearing in the distance like animals, in groups of ten or so; these are the "Wheatear coops," as the traps are called, in which the birds are caught.

The name "Wheatear" appears to me to be of simple origin, not wanting any trained derivationist to unravel, and to have been given by the country-people because of the habit, which I have often observed in this species, of sitting on the shocks of corn—actually on the wheat-ear—like Barley-bird, Clod-bird, &c.

I say a trained derivationist; for it requires caution to handle such

* In a Catalogue of British birds, by E. Forster, jun., of Clapton, dated 1817, I find:—

"*Sylvia œnanthe*, Whiterump, Wheatear, Clodhopper, *Shepherd's bird*, Fallowfinch, Fallow-smith, Chicel, or Snorter."

things. Who would imagine Nightingale Lane, in London, to be derived from *Knightengild*? Yet so we find in 'Up and down the London Streets,' p. 39, by Mark Lemon, quoting Cunningham's 'Handbook.'

Willughby remarks thus (p. 233):—"Wheatear, because in the time of wheat harvest they wax very fat." So they do; but wheat is not the cause of this.

Macgillivray (vol. ii. p. 296), quoting Markwick in the fourth volume of the 'Linnean Transactions,' says, they (the traps) "are set up every year on St. James's day, the 25th of July." This is not the case with our shepherds; they know less about St. James or his day than they do about Lindfield lamb-fair and the joys thereof.

The Brighton race-time is the first week in August; and the poulterers lament that they cannot get Wheatears till after the races, because the shepherds will not set traps before Lindfield fair, *i. e.* August 5th.

St. James's day is unknown to such shepherds as I have asked; but when you speak of Lindfield-Green stock-fair they are all alive. There are no fat sheep at it; only flockmasters and shepherds attend. Next to the one at Lewes it is the greatest fair in this part of the coast; they all draw to this spot. Some 30,000 sheep and lambs are said to be penned.

An old shepherd told me that they cannot set coops before, because they have all their lambs to trim for the fair. "We sets o' Lindfield, and *fills in* o' Lewes [*i. e.* September 21st]. There's a plentiful sight of gipsy carts. O! it's a nice fair!" "*Fills in*" means, put down the turf again.

This Lindfield, the shepherd's gathering, is near Hayward's Heath.

On the 17th of August I went round "the coops" with a shepherd. We caught only seven Wheatears and five Starlings: the former were killed by the man pinching their skulls; and the Starlings were let go. On August 16th the next shepherd caught thirty-eight.

Last year a Stoat went round the coops of my friend, just as a man would, and was too cunning to let the shepherd's dog come near him.

The shepherd gets 2s. per dozen, and says, "You must not allow earth to fall into your coops;" and Wheatears dislike long grass. A white chalk-flint is put near, which attracts them, as chalk does. They like a dip in a road, and will play along it.

The birds decrease in numbers. He has taken twelve dozen in one day; formerly they would catch twenty or thirty dozen. Sometimes, but very seldom, two are secured in one coop. Hawks now and then take the poor things clean out of the traps; and Jackdaws will attack them. A steady breeze and cloudy sky are the best for the work. He once took eleven Wheatears out of twelve chances; and the victim is usually alive when found, caught by the neck. When it is very hot, "the birds are gentle," *i. e.* let you get near them.

Willughby would seem to have started the nebular theory. In his wake followed Albin, Latham, Pennant, Yarrell, and others.

Willughby says:—"The birds, being naturally very timorous, if a Hawk happen to appear, or but a cloud pass over and intercept the sun-beams, hastily run to hide themselves in the holes under the turves, and so are caught by the neck in the snares."

This, he states, happens on the "downs of Sussex, which are a ridge of mountains running all along by the sea-coast for thirty or forty miles in length."

As I have been a resident under the said "mountains" for some five-and-twenty years, I must protest, as good old Waterton would say, in the name of all that is fur or feather, against the idea that the clouds frighten either beast or bird. If they did, the poor animals would indeed "dwell in the midst of alarms," as Selkirk wished to do.

It is only fair, however, to state that in the following passage Mr. W. Duppa Crotch (Journ. Linn. Soc. vol. xiii. p. 31), on the habits of the Norwegian Lemming, mentions the same alarm as common in that species of mammalia :—"A mere cloud rapidly passing over the sun affrighted them."

The writers who mention the cloud theory have, as I consider, done so without due examination, or by mistake. Take Pennant, for example. He made a like error about the herring (*cf.* Nature, Aug. 24, 1876, p. 352) :—"Pennant's tale of these fish coming annually in a vast heer from the high latitude of the northern seas has been discussed and settled again and again. . . . He gave literary life to the fables of the fishermen; and, so far as we know, he made no personal effort to determine whether or not the herring was a migratory fish."

Willughby appears to have believed the tale of the shepherds. The raw material received from such persons requires to be sifted.

Speaking of Hawks, it may be possible that a few Wheatears try to escape them. But Hawks are not very plentiful now; and shepherds would catch very few birds if they depended on accipitrine compulsion.

When I have been round the traps, I have taken out a good many Starlings—one of the least timid birds we have. Wrynecks have been caught in this way also. With these, clouds could have nothing to do. The truth is that the Starling and the Wheatear are birds accustomed to enter holes, and finding these tempting-looking places handy they run in.

Moreover the turf is cut into a trench; so that beetles must frequently fall in and remain there. Thus it is a beetle-trap, which probably has a good deal to do with the matter; for we know how fond Wheatears are of

beetles. I have examined the coops, and find insect life, wireworms, and small snail-shells, exactly corresponding to those which I have taken out of the gizzards of the birds themselves. The insects and others fall into the trench, and cannot get out till they are eaten.

Having before me the contents of some eighteen dozen birds, I find them to consist chiefly of comminuted and broken fragments of the elytra of beetles, which, though composed of chitine, and nearly indestructible*, are difficult to determine as regards species. There are seven sorts:—weevils (perhaps *Otiorhynchus*?); one nearly whole beetle of the genus *Amara*, but out of some twenty-six species it is not easy to decide which; one green beetle (*Agelastica halensis*); two caterpillars; a field-bug; some wireworms; and three kinds of shell, one (*Helix virgata*) swallowed whole, and fragments of *Clausilia laminata*, Montagu, and *C. nigricans*, Maton, with the usual grit. Perhaps the shells were taken, instead of stones, to assist the triturating process.

On the whole, though of course some objects must pass through without leaving a trace, yet at this season (August) it is clear that Wheatears, in the main, live upon beetles, of which the cases are probably cast up.

In one instance only did I find a small grain of wheat (?) in a gizzard, which remained just as swallowed, and would have sprouted.

It is the diet of beetles which perhaps gives these birds their flavour, and has the effect of very quickly rendering the dead ones too high for use,

* Certainly the nature of the coverings of beetles is indestructible. We see that they pass through a bird without being changed, except, of course, that they are broken. Professor Heer tells us of 116 species of fossil coleoptera which he has obtained at that rich locality, Schambelen, Switzerland, among the most ancient insects of that country; and he considers Schambelen is the only locality on the continent where so many primæval examples have been preserved. He says, it is chiefly the elytra of beetles which have come down to us ('The Primæval World of Switzerland,' by Professor Heer, edited by James Heywood, M.A., F.R.S., vol. i. p. 81 *et seq.*).

which is the same with other beetle-consuming birds—the Orange-legged Hobby (*Falco vespertinus*, Linn.) for one.

The feathers of the throat of the Wheatear fall out of the skin very soon if it is left to get stale.

What effect this food has upon the consumer I do not know. Those persons who devour the birds may not think that they are only eating beetles in another form. A fish-diet is said to be good for the brain, on account of the phosphorus—a fact, if it is one, which I commend to my brother editors!

Be that as it may, there is quite a demand for Wheatears; and nobody thinks of any thing but “how good they are!” just as they eat the trail of the Woodcock and Snipe, which “always have their intestines stuffed full of *tæniæ* and the eggs of these worms; every bird contains them by thousands. Fortunately we cannot be infested with the *tænia* of the Snipe and the Woodcock” (‘Animal Parasites,’ by P. J. Beneden, p. 229).

For various reasons, Wheatear-catching (or, as they call it here, “cooping”) is going out. First, the owners of the finest sheep in the world wish their men to attend to their business, and they had rather pay a little for the value of the birds than have their flocks neglected. I have heard of one man who purchased a watch by sale of the eggs alone. Then, again, the downs are much ploughed up now, which makes a difference.

After the Wheatear-season is over, the shepherds meet at a public-house to settle the accounts and receive the money.

Mr. Dresser remarks thus ('Birds of Europe,' part xxxi. p. 9):—

“Ornithologists living on the south coast of England say that the birds which arrive first vary in size from those which arrive later; but I find that the size of examples from various localities varies considerably, those from Greenland being the largest, whereas specimens from Palestine and some from Egypt are the smallest, intermediate forms being found from localities in various parts of Europe.”

All the birdstuffers here, and many of the birdcatchers, know the difference between the large and small Wheatears; and Macgillivray (vol. ii. p. 292) says “individuals are seen of much larger size than others.”

The smaller race comes first, perhaps about March 3rd (males), and females about March 10th; for the sexes do not travel together.

The larger race arrives about April 13th (males), and females April 24th.

The dates, of course, depend a little upon the year; but the space between is constant.

After careful reflection I construe the thing thus: the small birds are probably British-born, the large ones most likely Northerners.

Thus we have a very great difference in size between the larger continental birds, called here “Dutch Larks,” and the smaller ones of English origin. This is known to almost every one who owns nets; they can tell them in the dark. The two races keep distinct.

Again, we have the larger Ring-Dotterel and the smaller; but here I am quite at a loss to account for a fact the converse of the case of the Wheatears, that the large birds come first and the smaller ones last. But in all three species—*Saxicola œnanthe*, *Alauda arvensis*, and *C. hiaticula*—the times of arrival of the large and the small are different.

I suspect that, if it could be known, most birds vary in the same way,

size being climatal, but colour arising, in some cases certainly, from other causes which it is not necessary to enter upon here.

The larger and smaller Dunlins (*Tringa variabilis*), however, are much like the above cases (*cf.* Stevenson, 'Birds of Norfolk,' vol. ii. p. 382, and Cordeaux's 'Birds of the Humber District,' p. 137).

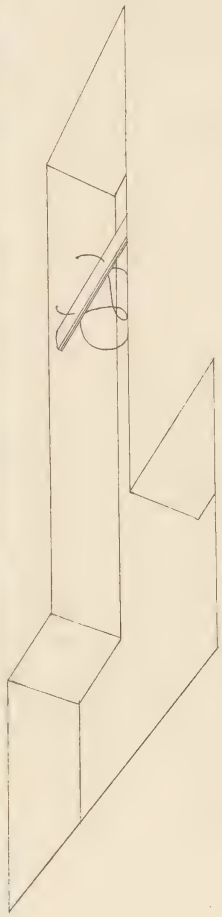
The lithograph of the Wheatear-trap was taken from a sketch I made, on the 17th of August, 1876, on a very broiling day, after going round the coops. The white flint stone which attracts the birds is depicted; the grass, however, is rather too long. Wheatears like a bare space best; and the trap is set in a cartway very often. Below, it is displayed in outline, open, with the splint across, and the two horsehair nooses, which overlap each other in the passage, so that the runner cannot pass without getting his head in. The horsehair goes through a split in the stick; and it has a knot at the end, to prevent the captive from pulling it out again in his struggles to get free.

The chamber is 10 inches by 16 inches, and 5 inches deep. The passage up to it is 28 inches long by 5 inches wide, and $3\frac{1}{2}$ inches deep. The splint, usually of willow, is 7 inches long.

A few Wheatears are caught in clap-nets; and there is usually a flight-day for all migrants. In 1876 it was, for these birds, August 23rd; and on this day two nets took four dozen.

It is not easy to put on paper these matters, which require to be seen; but we will suppose that harvest is ended, and that even the last "leaser"* has ceased to gather the scattered ears. No Sussex Ruth follows on the hill the vocation of her Moabitic namesake; nor does any British Boaz say to

* Sussex name for gleaner.



A SOUTH-DOWN WHEAT-EAR TRAP.

From a sketch taken by G.D. Rowley August 17th 1876

his reapers, "The Lord be with you," and hear as reply, "The Lord bless thee:" these are the days of *civilization*! Yet the shepherd of the downs, though he knows not St. James, neither regards his day, and perhaps but too little even casts a thought upon the owner of "the cattle on a thousand hills," still continues at this period of the year to set his traps for these passing birds, as his forefathers have done time out of mind; and I have endeavoured (before this thing, now rapidly on its decline, shall have ceased to be) feebly to bring it home to the thoughts of the reader, so that he may enter into and fully understand a local custom which, though expiring, even now remains, on the chalky shores of the sunny south coast, in our native land. Is there any one with "soul so dead" as to ignore such things? then let him ignore them.



J.C. Keulemans lith.

BOOULTON MERE—THE NARROW WATER
WEST SIDE OF HEARTH.— MAY 15TH 1877.

M & N Hanhart imp



J. G. Keulemans lith

THE REED HOUSE.

SCOULTON MERE.—THE BROAD WATER.
MAY 15TH 1877.

M & N. Hannant imp

POINT NEXT THE REED HOUSE.



J.C. Keulemans lith.

M.&N. Hanhart imp.

SCOULTON MERE...POINT OF THE HEARTH..
MAY 15TH 1877.

ON
SCOULTON MERE, NORFOLK,
AND THE
BLACK-HEADED GULL (*Larus ridibundus*).

BY MR. G. D. ROWLEY.

(Plates LXXVI., LXXVII., & LXXVIII.)

It rained zoologically (*i. e.* “cats and dogs”) on May 15th, 1877, when I started from St.-Neots station to meet Mr. Keulemans at Scoulton Mere, who came from London on purpose to sketch the illustrations which are here seen, permission being first obtained from the owner of the gullery, John Weyland, Esq., of Woodrising, Norfolk.

Mr. Robert Baldry, the agent, had kindly made every arrangement for us; and we found James Brown, the keeper (who has been there eighteen years), waiting.

The first intimation of the proximity of the Gulls was a flight of them feeding in a cornfield near Scoulton church, which, like some others, has a reed-thatched roof—an indication of a fenny neighbourhood.

The sight of the birds of Scoulton, as they rise in a dense mass, filling the air like snow, is certainly very beautiful; and the sound of the multitude of voices is music to the ornithological ear.

The Gulls chiefly congregate at each end of “the hearth,” as the

great island is called, on which Scotch firs and birches grow. If an unfortunate Heron appears they mob him, and keep even the Swans at a respectful distance with blows on the head. After the Gulls leave, however, the Herons frequently take possession of the mere.

Mr. Weyland has constructed a path, called "the twenty-foot road," all round, which makes a dry and agreeable promenade, whence the visitor may view the islets of the broad water, which are named Tea Island, Boat-house Island, &c. &c.

Many years ago the greater portion of Scoulton parish was common land ; and the mere is part of the allotment to the Weyland family. Long may it flourish and protect these Gulls, who probably are the oldest inhabitants, as they are mentioned by Sir Thomas Browne as breeding there in his time ; and they may be coeval with the lake itself.

The birds arrive some time in February. On March 28th, 1876, seven Black-headed Gulls were passing over in migration across one end of a field in Sussex in a certain direction. About an hour afterwards five more were seen, exactly in the same line. Presently some common Gulls arrived ; but all went in the exact track, though there were many miles between them. This was the curious line of flight which I have so often seen. They never deviated from the road.

The keeper states that he took 6000 eggs last season ; and these eggs fetch 1s. per dozen. But in the time of the Rev. Richard Lubbock—as mentioned in 'Fauna of Norfolk,' in my edition (1845)—it is said (p. 123) that an average season produces more than 30,000 eggs ; five years before that they took 44,000.

Mr. J. H. Gurney, jun., says, in 'Rambles of a Naturalist,' (p. 292):—

"In 1860 about 16,000 eggs had been gathered. In 1872, when I went again, only 4000 were taken. This sad falling off was due to dry seasons. Brown, the keeper, told me that once the farmers spread the fields in the neighbourhood with manure sown with salt, which poisoned the worms &c. upon which the Gulls fed, and that a great number died in consequence. He said they suffered from stoats and rats; he had, on one occasion, 150 of the nestlings and eggs just chipping destroyed by a stoat."

In Ray's 'Willughby' we find the following (Book III. p. 347):—

"Of this kind also are those birds which yearly build and breed at Norbury, in Staffordshire, in an island in the middle of a great pool in the grounds of Mr. Skrimshew, distant at least thirty miles from the sea. When the young are almost come to their full growth, those intrusted by the lord of the soil drive them off from the island, through the pool, into nets set on the banks to take them. When they have taken them they feed them on the entrails of beasts, and when they are fat sell them for fourpence or fivepence a-piece. They take yearly about a thousand two hundred young ones: whence may be computed what profit the lord makes of them"*.

Pennant states (vol. ii. p. 189):—

"The young were formerly highly esteemed, and numbers were annually taken and fattened for the table. Whitelock, in his 'Annals,' mentions a piece of ground near Portsmouth which produced the owner £40 a year by the sale of Pewits, or this species of Gull."

In the Regulations of the household of the 5th Earl of Northumberland

* Not such nice food as Macaulay ('History of England,' vol. i. p. 346) describes:—When the Court went to visit Tunbridge Wells at the Restoration, there were only huts, and "the wives and daughters of the Kentish farmers came from the neighbouring villages with cream, cherries, wheatears, and quails," and flirted with the courtiers.

begun in 1512, with others, were "Seegulles among the delecacies for principal feasts or his Lordship's own mees." They were sold at 1*d.* or 1½*d.* According to Pennant these were Black-headed Gulls.

At Scoulton the water can be let off, and there is a fresh supply which runs into the mere, into which the American weed has unfortunately entered.

Two foxes lately got onto the hearth, making great havoc; and the day we were there a stoat was caught in the bed of rhododendrons, some of which are more than twelve feet high. About seven years ago an Osprey arrived, and was shot.

The greatest depth of this water, which is two miles round, is about five feet. It is much the same in all others; it was so in the finest of them all, Whittlesea Mere, Huntingdonshire.

The Rev. Richard Lubbock says ('Fauna of Norfolk,' p. 49):—"The shallowness of the pools of Norfolk is remarkable. Hickling Broad, which contains more than 400 acres of water, is, unless in a few particular spots, not above four feet and a half in depth; indeed, in the middle of summer, when a regatta takes place there, it requires care to prevent a large pleasure-boat from running aground in some parts of the open water. This shallowness is in favour of fish and fowl. On the continent, where they reduce fish-ponds to a complete system, they do not think more than five feet of water desirable; and to all water-fowl shallows are preferable: water-weeds grow more abundantly, and are more immediately within their reach."

It will be seen in one of the lithographs, with rain descending; that the Gulls are sitting upon trees and bushes. This is just as we observed them in many instances; and it may be a subject of speculation if a practice of this kind, continued for many generations at Scoulton, would alter in any degree the form of the foot.

As regards the birds of other kinds, Bearded Tits (*Panurus biarmicus*) used to be there, and the keeper has a pair shot by himself; but these have now ceased to come.

Mr. Morris says ('British Birds,' vol. v. p. 228) that the Pochard (*Anas ferina*) has "been known to breed at Scoulton Mere."

I believe there are a few other Ducks, but nothing worthy of notice, the Gulls being the chief feature.

The various breeding-places of the Black-headed Gull are enumerated in Mr. Morris's 'British Birds;' and the legend connected with the species in the family of the Askews, at Pallinsburn Hall, Northumberland, is quoted.

Mr. J. H. Gurney, Jun., calls the one at Scoulton "the largest gullery of its kind in England," and remarks that "there is another, much smaller and more recent, at Hoveton Broad, in Norfolk. It is divided into four little colonies, which in 1872 barely numbered 400 birds. The owner, Mr. Blofield, started with sixteen pairs, which were supposed to have come from the Martham district, and may have been the descendants of the old colony at Horsey."

Mr. Robert Gray mentions two Scottish breeding-places ('Birds of the West of Scotland,' pp. 476, 477):—one, a marshy islet in Hairlaw Loch, near Neilston Pad, consisting of about 500 to 800 pairs; the other on the island of Inchmoin, on Loch Lomond." And in the 'Birds of Ayrshire and Wigtonshire,' by Robert Gray and Thomas Anderson (pp. 52, 53), we find:—"There are many breeding-stations in our district (such as Loch Doon, Ayrshire), which are frequented by thousands of birds; and as the eggs are not farmed out as in England, these nurseries are seldom invaded, except by mischievous boys in quest of adventure, or some prowling fox desirous of giving her cubs a change of diet."

In 'The Field,' June 23, 1877, appeared the following statement:—

"Black-headed Gull nesting in a Boat."

"There is a loch near my house, one end of which is all reeds and rushes, where the Black-headed Gulls have their nests in hundreds. I have a small boat fastened to a stake about twenty yards from the shore, near the Gulls' nests. On Thursday, the last day of May, I had occasion to use the boat, and found a Gull's nest built on the top of a small locker in the bow of the boat. I remarked to the keeper, 'That is a rum place for a Gull to build its nest in!' and threw it overboard.

"I had no occasion to go near the boat again until the Tuesday following (June 5). There was then a complete nest and two eggs in it, in the same place on the locker. This time I took the boat and used it for about an hour and a half, and then moored it to a stake, without interfering with the nest.

"I did not go near the boat until Saturday, the 9th. There had been some high winds; the boat had broken adrift, and was stranded about two hundred yards from its original position, but remaining perfectly upright. The Gull was sitting on the nest. I took the boat on the Saturday and crossed the loch, hoisting a sail, and was away about an hour. All the time we were sailing one particular Gull kept flying over our heads, and screaming—no doubt the owner of the eggs. I afterwards moored the boat in its old place, and walked down the same evening: the Gull was on the nest in the bow of the boat.

"I do not intend to disturb them again (if I can help it) until they are hatched. When the young are two days old they are independent of the nest, though they do not go far from it; I will then put them overboard, among the rushes.

"J. DUNBAR BRANDER."

"Pitgaveny, Elginshire."

Thompson, in his 'Natural History of Ireland' (vol. iii.), gives as good an account of the Black-headed Gull as I have read. He says :—

"I watched for a long time (January 1, 1842) about sixty of these Gulls 'following the plough' in a field adjoining Park Mount, on the western side of the bay, where it was beautiful to observe them, their manner was so playful and full of life. They kept in a close flock, generally within ten or twelve yards of the plough in its progress, and were frequently not more than one or two yards distant from the ploughman's head. Hovering *en masse* over the newly turned-up furrows, one or several together dropped down as their prey appeared. They called all the time."

My own small flock of some eight individuals, which I have been accustomed to keep for many years, my constant companions, afford me much pleasure, particularly in the summer's evening, when they stand round their pool of clear water, making darts at all the insects which visit it. They are well taken care of; and it is very seldom that one dies of disease; but in the spring it is common for some cock bird to fall a victim in their continual battles.

Mr. Thompson says (p. 324) :—"Our boatman gave the species the character of being very pugnacious; and we ourselves had ocular demonstration to that effect."

I can quite confirm the opinion of the boatman; and at Scoulton they are so bold that they knock off the men's hats when the eggs are taken.

Mr. Thompson remarks again (p. 332) :—"The preying of these Gulls on moths has been alluded to in connexion with their breeding-haunts in Mayo. They are commonly sought, in the summer evenings, so late as 9 o'clock, in the counties of Roscommon and Leitrim, when flying

after moths (perhaps the ghost-moth, *Hepialis humuli*) above the ripe but unmown meadows, in flocks generally of about a dozen birds."

Insect-catching goes on with my birds till it is too dark to see.

We could not, however, observe any hawking after insects at Scoulton. Perhaps we were too far off; for we did not land on "the hearth;" it is marshy.

The arrival of the cap is most expeditious. It is astonishing how soon the feathers on the head change their colour; a few days are enough. An instance of an individual retaining this mark during winter, or else assuming it very early, is mentioned in 'The Field,' January 23, 1875:—

"Black-headed Gull with Black Head in Winter."

"While walking along the beach at Exmouth, on January 11, a Black-headed Gull (*Larus ridibundus*), with the entire head black, and in adult plumage, flew slowly over my head. I could make no mistake, as the bird was close to me; and I know these Gulls well, as they nest in numbers on a bog near my residence in the Queen's County. On December 21 also, when on the beach here, two Gulls flew by with the black head. Morris gives the winter plumage as, 'in winter white, with only a dusky patch behind the the eye.' Can you explain this variation from the normal condition of plumage?—C.

"[It is certainly unusual to see Black-headed Gulls with black heads in winter; but the period during which the summer plumage is gradually assumed often varies considerably in individuals of the same species, depending, no doubt, upon the age, health, and condition of each. This is observable in a more marked degree in the Godwits, Knot, Curlew, Sandpiper, Grey Plover, and other wading birds.—ED.]"

On December 3, 1862, I handled a beautiful specimen. The breast-

feathers were shot with an intense pink, and the primaries also ; even the tube or quill part of the feathers was quite pink. I never saw so good a one. This lovely hue, however, vanishes soon after death.

With reference to the hood (which is brown, and not black), and the winter bird mentioned above, there is something which requires investigation. A similar thing is mentioned in Newton's 'Yarrell' (vol. i. p. 422) concerning the Blackcap (*Sylvia atricapilla*). But the subject requires more careful study than I can give it at present.

One of the most delightful things to me is to hear the birds wake in the morning ; and I particularly enjoy the first notes of the Thrush. This fellow catches the early worm. But what a pleasure it would be to see the sun rise at Scoulton, and with it the Gulls ; for sweet is

"The breath of morn, when she ascends
With charm of earliest birds."

MILTON : *Paradise Lost*, Book iv.

The shades of evening were falling fast, the last party of Gulls had returned to their island-home, the Snipes had settled upon their nests, and the old Swan gathered her dusky cygnets under her fostering wings with affectionate solicitude ; then it was that we turned our backs upon this lovely spot, weary in body, but with mind refreshed. The gathering vapours reminded us that the Bailiff of Marshland (as fenmen call the ague), though now no more, might yet grimly rise from his grave. Far better would it be to become shrouded in "the Eynd, or water-smoke" of Norfolk—a "sea-fret" less dangerous—than to have an interview with the bailiff. Taking, therefore, one more fond look at the far-off carp*, whose splash in the broad water proved how fishful

* A pike was caught, not long since, with a carp of 2 lb. inside him, as told me by the keeper. The pikes, however, do not, as far as is known, devour the young gulls ; neither do hawks attack the old ones.

(to use the language of old Izaak) is this lake, we allowed thoughts of our inn at Watton to present themselves. Cheerful were these in our fasting condition ; so that we did not even stop to see Weyland or Wailing Wood, the scene of "the lamentable tragedy" of the babes thereof and their "cruel uncle," but returned to dry our garments as fast as horse could take us, and in our dreams to renew the charming sight of thousands of the very prettiest and most interesting of the British *Laridæ*, wearing, like the maidens in Evangeline's story, their summer caps, and filling the air with their voices.

pt. 10, Oct. 1877
THE BIRDS

OF

MONGOLIA, THE TANGUT COUNTRY,

AND THE

SOLITUDES OF NORTHERN TIBET.

BY LIEUT.-COL. N. PRJEVALSKY.

[Continued from p. 389.]

Order V. GALLINÆ (*continued*).

196. PHASIANUS STRAUCHI*, nov. sp. *Fasan Straucha*.

Capite et collo viridi-æneis, occipite olivaceo, violaceo vix micante; cervice aurata, maculis triangularibus viridi-æneis ornata; scapularibus et dorsi parte antica obscure-ferrugineis, albido nigroque variis; tectricibus alarum griseis, viridi micantibus, rhachibus plumarum albidis; tergo et uropygio cinereis, viridi micantibus, primo squamulis fulvis nigris viridibusque notato, secundo immaculato, lateribus vivide cinnamomeis; pectore aureo-purpureo, plumis nigro limbatis, abdomen versus medio metallice nigro; abdomine fuliginoso, lateribus rufo-auratis, maculis transversis chalybeis ornatis; rectricibus brunneo-ferrugineis, violaceo marginatis et fasciis latis transversis nigris, fulvo limbatis, ornatis; remigibus griseo-brunneis, fulvescenti maculatis; facie nuda papillosa, ruberrima.

Fem. supra brunnea, fulvo nigroque variegata, subtus pallide fulvescenti-cana, dense squamata et undulata.

* [This Pheasant is the subject of plate xvii. in the original.—EDITOR OF O. M.]

Measurements :—

	Length.		Width.	Wing.		Tail.	
	in.	in.	in.	in.	in.	in.	in.
♂.	34—37·5		28·5	9·5—9·9		20—23·3	
♀.	24·5		25	8·7		12·5	
	Gape.			Tarsus.		Middle toe.	
	in.	in.		in.	in.	in.	in.
♂.	1·3—1·33			2·18—2·32		1·65—1·73	
♀.	1·16			2·14		1·6	

Quills, 4th=5th longest, 3rd>6th, 2nd>7th; 1st one inch shorter than 4th. The outer tail-feather is more than five times less than the central one. Culmen of the male light horn-colour, upper mandible of the female blackish; tarsus brown, and toes somewhat darker; iris golden yellow.

Male.—Head and neck similar to that of the preceding species; only the spot on the nape is darker, and there is hardly any indication of a white collar, and usually no sign of one at all. The sides of the back are golden-coloured, marked with triangular dark green spots on the tips of the feathers; the bases of the latter are dull black, edged with brown; the shafts are white, with a brown line. All the shoulder- and centre back-feathers have a wide metallic-violet edge, which is followed again by a rusty-coloured edge round the black base, marked with white streaks, which latter get very distinct on the shoulders, and even form small spots. The lower portion of the back is ashy grey, with a green lustre and dark green scale-like spots on the ends of the feathers, which on their inner side are edged with irregular yellow and black streaks. The rump is of a similar colour, but without any markings; the upper wing-coverts are concealed by the long rump-feathers, which at their points attain rather a rusty colour. The breast is golden carmine, with a black or dark blue edge on the tips of the feathers, the base being black, with white shafts. A narrow line along the centre of the lower portion of the breast is black, with a green lustre, and similar-coloured stripes

run along the sides of the stomach, which latter are of a smoky colour; the feathers of the flanks have metallic-violet colours, whilst the sides of the stomach are light golden brown with dark blue spots on the feathers, which are rather larger than in the preceding species. Wings brown; primaries marked with grey cross bands, which on the inner webs attain a triangular shape, often, however, also a very irregular one; the secondaries have pale edges, and are pied. The upper wing-coverts are ashy grey, with a green tint and white shafts. The tertiaries and their coverts are spotted with metallic-violet colour. Under wing-coverts pale reddish brown, and sometimes yellowish, with dark brown streaks and spots. The tail is rusty brown; the tail-feathers, with the exception of two or three of the outer ones, have wide lilac edges and large black cross bands, which are edged with pale yellow lines. Under tail-feathers black, with large brown spots.

The *female* is very closely allied to the female *P. colchicus*, but is somewhat darker, especially on the hinder parts.

I have named the species after our Academician, M. A. A. Strauch.

This bird inhabits the wooded parts of the Kan-su mountains, up to an absolute height of 10,000 feet. It appears to be most numerous in the Tetunga and Buguk-gol valleys; but higher up these rivers, where woods are scarce, it disappears.

In voice and habits it does not differ from the two preceding species. The breeding-season commences in April or March, and lasts until the middle of July. The earliest young we obtained on the 23rd of June. The number of young averages from six to ten, and sometimes even twelve: they are always accompanied by both the parents; and very often the male bird defends the young even more vigorously than the female.

The northern limit of its distribution is formed by the Kan-su mountains.

197. *CROSSOPTILON AURITUM*, Pall. *Ushastey Fasan.*

Elliot, Monograph of the Phasianidæ, i. pl. xvii.

The habits of this peculiar bird, as far as we could observe them, have been already recorded in the first volume (pp. 351–353) of the present work. I will mention here that we met with this Pheasant only in the Kan-su and Ala-shan mountains, the latter forming its northern boundary. The natives know the bird well; and the Mongols call it “Hara-takia” (or black fowl), the Chinese “Shan-dgi” (or mountain-fowl), and the Tanguts “Shariama.” In both localities these Pheasants inhabit the wooded mountainous regions, and ascend to a height of even 10,000 feet above the sea-level. It is a resident, and remains all the year round in certain places. Water does not seem to be of so much necessity to this bird as it is to other species of the present group; at least, it keeps very often to localities in the Ala-shan mountains where not a drop of water is to be found.

In autumn and winter they congregate in small flocks, probably in families, but very early in spring separate into pairs, when the males at once commence to crow—*i. e.* uttering at intervals a loud disagreeable note somewhat resembling the cry of a Peacock. This usually occurs in the morning, but occasionally also during the day. In the beginning of May almost all the females sit on the eggs, the number of which (according to the statements of the natives) varies from five to seven.

From a local sportsman in Kan-su I obtained three quite fresh eggs, which he took, after having shot the female bird, from the nest.

The eggs of the present species resemble in shape those of the Barn-door Fowl, but are very smooth and of a pale olive-grey colour, without any spots; large diameter 2"·16, small diameter 1"·6–1"·63.

After the breeding-season the males at once commence moulting, and attain their fresh plumage only in October again. Generally their feathers very soon get worn, and the birds are in full plumage only for a short time in winter and spring.

We did not succeed in finding any young; but the Tanguts informed

me that the young are always accompanied by both parents. The old, as well as the young, run very fast, and are very clever in hiding themselves in thick bushes when pursued, and generally depend more upon their legs than upon their wings.

Like most of the family, these birds are fond of digging about in the ground in search of roots ; and it appears that they chiefly feed upon plants.

In Kan-su, about Chertinton and along the valley of the river Ranghta, this Pheasant is rather scarce ; but about Tetung-gol, in the neighbourhood of Simney, it is very abundant, especially so a little higher up the river.

The four specimens of *C. auritum* obtained by us differ from Pallas's description (Zoogr. Rosso-Asiat. ii. p. 87) in not having any white on the outer webs of the first three primaries and on the under tail-feathers. The same is noticeable also in specimens brought from Sichuaney by Père David to the Paris Museum.

Measurements :—

	Length		Tail.	Width.		Wing.	Gape.	Tarsus.	Middle
	(without tail).								toe.
	in.	in.	in.	in.	in.	in.	in.	in.	in.
♂ . .	17	19·5		34		12	1·5	3·3	2·2
♀ . .	17·5	16–19·7		30·5–32		11·8	1·52	3·1	1·97

198. *ITHAGINIS GEOFFROYI*, J. Verr.

Elliot, Monograph of the Phasianidæ, ii. pl. xxxi.

We observed this scarce species, called by the natives "Sermun," only in the Kan-su mountains, where it principally inhabits the wooded districts, and also ascends to the alpine regions. We did not obtain a single specimen ourselves, but bought a skin from the Tanguts, who told us that these birds, in spring, keep mostly to the edges of forests and about the alpine bushes, and then feed on a particular kind of grass. In winter they

descend to the middle and low mountain-ranges, where they form small companies, and pass the night on trees, like *Crossoptilon auritum*.

The note of the present species consists of a long, perfectly clear, but not loud whistle.

The Kan-su mountains appear to form the northern boundary of its geographical distribution.

199. PERDIX BARBATA, J. Verr. *Kuropatka boradataya*.

Gould, Birds of Asia, part xx. pl.

We found this Partridge throughout the country traversed by us, from Kiachta and Dolon-nor to the sources of Yang-tsi-kiang, in Tibet, avoiding only the deserts, such as Gobi and the sandy Ala-shan plains. It is very common in S.E. Mongolia, where it principally inhabits the hills and bush-covered mountains, but does not appear to occur in large forests. The Hoang-ho valley also abounds with it; and therefore it cannot be considered to be a dweller in the mountains, although it prefers hilly localities. It is of local occurrence in Kan-su, and has not been observed by us at all in the Koko-nor steppes; whilst on the southern slope of the Koko-nor mountains it was found to be very common.

In Tsaidam it inhabits the dry parts; and in Northern Tibet I once noticed a small flock on the banks of the river Muru-us.

In its habits, mode of life, and voice it does not differ from its European congener. In spring, about the end of March, the flocks separate into pairs; but the eggs are laid very late, usually not before the beginning of June. We found some young ones at Muni-ul on the 28th of June. The nest is constructed on the ground; and the number of eggs ranges from thirteen to eighteen; these latter do not differ, either in size or colour, from our common species.

200. PERDIX SIFANICA, n. sp. *Kuropatka sifanskaya*.

P. hodgsoniæ simillima, sed minor (?) macula abdominali nigra nulla* ; loris unicoloribus griseis, vertice nigro variegato.

Fem. mari similis.

In comparing our birds with *P. hodgsoniæ*, Gould, Birds of Asia, part ix., the former have rather larger markings on the back, and the shaft-streaks of the shoulder-feathers are narrower. In all other respects these birds are identical.

Even the difference in size has been marked by me with a (?), as *P. hodgsoniæ* has been measured from only one specimen.

We found this bird in the alpine regions of Kan-su, principally in the rhododendron thickets about the sources of the Tutunga, where the mountains are covered with small tufts of *Potentilla tenuifolia*. It descends to the plains, which, however, are not at a lower elevation than 10,000 feet above the sea-level.

Its habits are very similar to those of the preceding species, only the voice is different. When taking to wing it utters a more squeaking but louder note than *P. barbata* ; and its call-note is also harsher. The number of eggs in one clutch is about fifteen, or perhaps even more. At the end of August the young were only about half as large as their parents, which latter were moulting fast at that time.

In the beginning of April we revisited Kan-su, and found these birds already paired ; but the females were not sitting even in the beginning of May, although some eggs were deposited.

Its range does not extend northwards beyond Kan-su.

* Journ. Asiat. Soc. Beng. 1857, xxv. p. 159.

201. COTURNIX COMMUNIS, Bonn.? *Perepelka obiknovennaya*.

A male was obtained in S.E. Mongolia in June. It differs from the European bird in the longer lancet-shaped feathers of the sides of the throat, which are like those of *Perdix barbata*. I cannot say if this is a constant or only an occasional case, as we have got but one specimen for comparison.

I will just mention here that I have never heard the note of the European Quail in Mongolia, which is so easily distinguished from the Japanese species.

202. COTURNIX JAPONICA, Temm. & Schleg. *Perepelka Japanskaya*.

Coturnix japonica, Temm. & Schleg. Faun. Jap. pl. lxi.

Coturnix muta, Pall.

This bird is easily distinguished from the European one by its voice. We found it in S.E. Mongolia, Ordos, Kan-su, and about Koko-nor, breeding, sometimes numerous and at others abundantly; and from the end of March to the middle of summer the call-note of the males can be heard daily, consisting of some deep hollow sounds several times repeated in quick succession. In the Yellow-River valley they winter in great numbers, and sometimes stop for the cold season also in S.E. Mongolia. In Kan-su they occur in the steppes, but avoid the narrow mountain-valleys.

We found it common in Ussuri-country, where it principally keeps to the plains and steppes. It arrives there in spring, about the end of March or early in April, and leaves again about September and October; a few, however, remain here to winter. The spring call-note of the males is to be heard until the middle of August; and the first young were found by us on the 29th of May.

203. CACCABIS CHUKAR. Gray.

Gould, Cent. of Birds, pl. lxxii.

Jokta, Mongol.

Is very common about Kalgan and Gu-bey-key, and has also been obtained in Mongolia in the Muni-ul, Ala-shan, and Hara-narin-ul mountains; and a few birds were seen in the sandy plains of Gobi, where they find their northern limit.

In Kan-su it only occasionally occurs on the mountains, and is replaced at Koko-nor and in Tibet by the succeeding species.

This bird is partial to the woodless mountains, and does not appear to have much need of water, as it usually inhabits localities which are quite destitute of it, such as the Ala-shan plains.

C. chukar is lively and quick. The voice somewhat resembles that of the Barn-door Fowl, and is to be heard every day throughout the year, especially in spring, when it ascends to the tops of large rocks, and calls there.

In April the birds commence pairing; and we found the first young ones on the 29th of June; they were about the size of a Quail.

In suitable localities, where they are not molested, they are very tame, and allow one to approach within a few paces, even in quite open places; and when disturbed they rely more upon their legs than upon their wings, and take to the latter only in extreme cases.

Its flight is strong and fast, but never of long duration, usually only from one rock to another.

In comparing Chinese specimens of *C. chukar* with Himalayan birds, Mr. Swinhoe found (P. Z. S. Lond. 1871, p. 400) that the former differ from the latter by their reddish upper parts of the body; and on these grounds the English ornithologist founded the var. *pubescens*.

204. CACCABIS MAGNA, n. sp.

C. chukar simillima, sed major et supra pallidior; loris nigris, vitta superciliari nigra non interrupta; circulo gulari rufo, margine interno nigricante.

The following are the more exact distinctions of the present species from the closely allied *C. chukar*:—(a) larger size; (b) lores and superciliary stripes under a white line are black, as in *C. saxatilis*; (c) the collar of the neck is double, on the inside it is blackish or black, on the outside reddish brown and almost of the colour of the ear-coverts; under the throat the collar is indistinctly marked; (d) the black stripes on the flanks are as narrow as they are on *C. saxatilis*, but the distance between them is as large as it is in *C. chukar*; (e) the upper parts of the body are paler than they are in Chinese specimens of *C. chukar*; (f) comparatively, the voice also seems to be different.

Measurements:—

	Length.	Width.	Wing.		Tail.		Culmen.
	in.	in.	in.	in.	in.	in.	in.
♂. <i>C. magna</i> . .	15	22	7·5	7·7	4·25	4·9	0·61
♀. <i>C. chukar</i> .	13	?	6·7	7·1	3·7	3·8	0·56

	Gape.		Tarsus.		Middle toe.	
	in.	in.	in.	in.	in.	in.
♂. <i>C. magna</i> . .	1·03	1·1	1·6	1·7	1·4	1·46
♀. <i>C. chukar</i> . .	0·97	1	1·6	1·67	1·5	1·58

We first obtained this bird in the most desolate parts of South Koko-nor mountains; and later on we met with it also in Northern Tibet and the Tsaidam plains. In its habits it does not differ from *C. chukar*, and keeps usually in small companies (probably families) on the rocky mountains and in their neighbourhood.

When taking to wing it utters a peculiar hollow note, something like “*cuta-cuta*,” which we never noticed in *C. chukar*; and the present species seems to be more silent than the preceding one.

205. *TETRAOGALLUS THIBETANUS*, Gould. *Skalistaya kuropatka*.

Gould, Birds of Asia, part v. pl.

According to Gould's plate and Hume's description in 'Lahore to Yarkand,' p. 281, the female of the present species is similar to the male, except in a few trifling characteristics; whereas a female bird obtained by us in Kan-su differs from the male by having only a narrow white stripe along the centre of the throat, whilst the sides of the throat, crop, and front of the breast are similar to the back—*i. e.* yellowish brown, with many blackish streaks and blotches.

A male bird, also from Kan-su, has, under the throat, a large slate-coloured spot, and has not got an uninterrupted cross band running parallel to the breast-band, which is spoken of by Hume, but which is not marked at all in Gould's figure.

The culmen of the male is orange-colour, that of the female yellowish green; legs in both sexes orange-red; toes underneath yellow.

The Mongols call this bird "Hailik," and the Tanguts "Cunmo." We met with it in Kan-su, South Koko-nor mountains, and in Northern Tibet; and in all these places it inhabits the wild and desolate rocks and ravines, not below an altitude of 10,000 feet above the sea; and in Tibet it ascends even up to 16,000 feet.

The habits of this peculiar bird have been described by me in the first volume (p. 348) of the present work; and now I will add some more particulars concerning it.

Like *C. chukar* the present species is a quick and lively bird; and its voice can almost daily be heard, at least in spring and summer, in the midst of the wildest and most desolate parts of the mountains. In the middle of the day, however, from about 11 to 3 o'clock, they do not call, but usually rest; in the morning they begin long before sunrise.

The voice of this Snow-Partridge varies in the following ways:—

(a) When at rest it utters a note resembling that of the female Barn-door Fowl, only louder, occasionally interrupted by a peculiar whistle something like that of a Snipe; (b) when alighting it calls several times in succession, sounding like "*click, click, click*;" (c) when settling down on the ground it makes a noise which sounds in this way—"Go^{oooo}, Go^{oooo}," several times repeated; and (d) when collecting its frightened young it whistles in a manner which is quite distinct from the above-mentioned sound.

In winter they keep in small flocks up to fifteen individuals; and in April, or even earlier, they commence pairing.

The number of young belonging to a nest varies from five to ten; and we found young ones early in August. They were very small, about the size of a Quail; whilst others were quite as large as their parents.

We did not succeed in finding any eggs: only on one occasion my companion discovered a nest with some broken shells in it, which evidently belonged to the present species; and according to the fragments the eggs are larger than those of the common Hen, of a dirty white, shaded with green, and marked on the smaller end with some blackish-brown spots.

Both parent birds accompany the brood. Whilst the young are small, they crouch on the approach of danger, or try to hide themselves between the loose stones, whilst the old ones keep on running within about twenty paces from the sportsman; but when they are full-grown they try to escape by running, and follow the cock and hen which are leading the whole flock. When much pressed, however, they fly, and do not alight on the ground again until they have crossed a cleft.

These birds are very wild, and when alone the old birds do not allow themselves to be approached within a hundred paces. They hide themselves between stones, and usually spring up and take to flight, or else try to run, which they do so fast that a man cannot catch them.

We noticed that when they are approached from the bottom of a hill

they commence running, but if from the top they at once get up. When settling on the ground they shake their tails several times, just as our Willow-Grouse do.

Throughout August, and even in the earlier part of September, this species was moulting. The Tanguts informed us that the birds got very fat in the autumn, which, however, we did not observe in those killed at the above season in Tibet.

The range does not extend north beyond Kan-su.

206. *TETRAOPHASIS OBSCURUS*, Vieill.

Elliot, Monograph of the Phasianidæ, i. pl. xxi.

Cundick, Tanguts.

We found *T. obscurus* in the same localities in Kan-su as the preceding species, only at a comparatively lower altitude. It was first discovered by Père David in Si-chuani, and belongs to the middle mountain-ranges, where it principally keeps to the wooded and bush-covered rocks and ravines.

Early in spring (about March) they commence pairing; and from that time their voice can be heard daily: it is similar to that of *Crossoptilon auritum*, being, however, more varied and longer-lasting. The male and female call at the same time, running side by side, with the tail erected and wings dropped. The spreading of the tail is very characteristic: it is like a fan when erected. And this is done also when the bird is surprised or runs in order to avoid danger. When open, the tail is brownish-black with a distinctly marked white band.

Like *Crossoptilon auritum*, the present species does not call much, and its voice can be heard only from four to five times at certain intervals, but always (or, rather, usually) in the morning, at sunrise; and as soon as one pair commences calling, others answer.

When flushed, *T. obscurus* utters a loud cry, but does not fly far; and

when disturbed in bushes it always attempts to escape by running. Shooting these bird is extremely difficult.

In Kan-su we only once saw them in spring, but never in summer.

According to the statements of the natives, the nest is constructed of grass, on the ground, under thick bushes. The number of eggs forming a clutch is unknown to me. The female commences laying early; and on the 9th of May I received from a native sportsman a set of four already incubated eggs, and another lot of three fresh ones was brought to me by the same man. The eggs are yellowish-grey or of a dirty grey colour, marked with brown spots, which are thickest on the smaller end; large diameter 1".9–2".3, small diameter 1".48–1".53.

We found this bird only in the Kan-su mountains, where it finds its northern limit; and only two females were obtained by us.

Measurements—length 19", width 25", wing 9".5, tail 5".8, gape 1".22, tarsus 2", middle toe 1".47.

207. TETRASTES SEWERZOWI, n. sp. *Piabchic Severzowa.*

Supra olivaceo-grisea, subtus albida, ubique fasciis transversis nigris signata; pileo subcristato, ferrugineo, nigro maculato; remigibus fuscis, fulvo limbatis; cauda nigra, striis transversis albis notata; maris gula nigra, albo circumcincta, feminae vero fulva, fusco maculata.

Measurements:—

	Length.	Width.	Wing.	Tail.		Tarsus.	
	in.	in.	in.	in.	in.	in.	in.
♂ . . .	15	20	7	5·2—5·47		1·32—1·53	
♀ . . .	15	20	7	5·1		1·37—1·43	
				Bill, from front			
	Middle toe.	Hind toe.		angle of nostril.		Gape.	
	in.	in.		in.		in.	
♂ . . .	1·3	0·35		0·45		0·88	
♀ . . .	1·13	0·35		0·43		0·83	



TETRASTES SEWERZOWI PRZEWOŃC

Quills, 4th longest ; 3rd almost = 5th, only very little shorter ; 2nd = 7th ; 1st almost 1" shorter than 2nd. In the rounded tail the outer tail-feathers are 0"·8 shorter than the central. Culmen of male black, that of the female blackish brown, yellowish at the base of the lower mandible ; iris light brown ; legs light reddish brown ; tarsus is covered with feathers only for one third of its length.

Male.—Upper parts of the body olive-grey or brownish, marked with small black blotches and narrow cross bands, which are widest on the back ; the neck and rump are sometimes slightly shaded with pale reddish brown. Crown of a dirty rust-colour, with black spots ; the nape-feathers are long and form a small crest ; the ear-coverts are similar to the crown, but without any markings. The naked eyebrows are red, and continue on the sides of the nape in a white line above the ears ; a similar line runs along the centre of the forehead and continues under the eyes and neck, and edges the black throat. The feathers covering the nostrils are black, and under the chin they are rather long. The underparts are dirty white, with a reddish-brown tint on the flanks and crop, which are also marked with large black or blackish cross bands, which become almost indistinct on the stomach. Wings dark brown ; primaries are marked on the inner webs with reddish-yellow cross bands ; the secondaries have the ends and edges of a similar colour, and occasionally also cross bands on their outer webs. The upper wing-coverts are just like the back, only still more pied and marked with yellowish-white spots on their ends ; the feathers of the shoulders have white shafts. The rounded tail is black, with five white bands, and the tips of the feathers (with the exception of the two central ones, which are yellowish grey) with black spots and indistinct blackish cross bands, which are again intercepted lengthways by white narrow lines. The under tail-feathers are brownish, with broad white tips and blackish cross bands.

The *female* is of the same size as the male, and differs from him only by not having a black throat, but a pale yellow one, marked with blackish spots and less distinctly edged with white; also the white above the eyes does not reach so far as in the male.

I have named the present species after our well-known ornithologist N. A. Severtzoff. We found it only in the Kan-su mountains, in the lower and middle mountain-ranges—that is, up to an elevation of 10,000 feet above the level of the sea. It inhabits the larch and fir forests, and seems to be particularly fond of small clefts through which brooks are running, and the sides of which are covered with thick bushes. In its habits and voice it resembles its European relation. I only once succeeded in finding its young, in August; and at that time they were very little smaller than their parents. On our approach they left the ground and settled on the trees, when the female bird at once commenced to call, something like “*mit, mit, mit.*”

Its range does not appear to extend north beyond Kan-su.

Order VI. GRALLÆ.

208. OTIS TARDA, L.? *Drofa dudak.*

Does not appear to breed here, and was observed by us in the Yellow-River valley and about Shara-had only in winter in rather limited numbers; and during migration we met with several single birds in the Gobi desert.

We found them breeding tolerably numerous in Ussuri-country, especially about Lake Hanka.

209. OTIS MACQUEENI, Gray?

A small Bustard, probably belonging to the present species, was several

times observed by us during the summer in the Yellow-River valley, where it probably breeds. Père David also mentions some small Bustards which he saw in S.E. Mongolia, and which the Chinese call "Cepoo;" but neither he nor we succeeded in getting a specimen.

210. *VANELLUS CRISTATUS*, Meyer. *Pigolitzia chibetz*.

Is found breeding throughout S.E. Mongolia and the Yellow-River valley, where small marshes or even brooks occur; and as early as the 5th of June we saw fledged young.

During the spring migration, which principally takes place in the end of March and beginning of April, we often saw large flocks of these birds about Dalai-noi.

In Tsaidam the first migrants arrived on the 17th of February. We saw some birds at Koko-nor even as late as the middle of October; but in spring they did not arrive until the middle of March, and even then only in small numbers, and did not commence building until April.

We did not observe this species in Kan-su.

About the 10th of March they appear at Lake Hanka; and as soon as the lakes and ponds are free from ice, they go to nest, and the young commence flying about the middle of June.

211. *CHETTUSIA INORNATA*, Schleg.

Temm. & Schleg. Faun. Jap. pl. lxiii.

Is much rarer than the preceding species in S.E. Mongolia. We saw the earliest migrants on the 16th of March, 1871, and on the 1st of April, 1872. In the Hoang-ho valley they breed tolerably numerous about the lakes and ponds.

It is much more shy than *V. cristatus*; and although it flies towards the sportsmen with loud cries when its young are in danger, still it very soon

settles down on the ground and begins to run, uttering all the time loud cries.

We did not find it either in Halha, Kan-su, Koko-nor, or in Tsaidam.

212. CHARADRIUS FULVUS, Gmel.

C. xanthocheilus, Gould, Birds of Australia, vi. pl. xiii.

In the beginning of May 1871 we noticed large numbers of this species during migration in S.E. Mongolia, close to Si-ins; they kept in large flocks about the newly-ploughed fields. In the following year we again met with some, on the 24th of April, in the Hoang-ho valley, but found them rather scarce. In autumn only a small flock was observed by us, in the beginning of September, in Northern Ala-shan; but, according to the statements of the missionaries, these birds are just as common about Si-ins in autumn as they are in spring.

It does not inhabit Kan-su or Koko-nor; and only a few migrating specimens pass over Lake Hanka, about the end of August.

213. EUDROMIAS VEREDUS, Gould.

Ibis, 1870, pl. vi.

A very old male, shot by us in June, differs from the above plate by having the whole head, throat, and neck of a pure white, with a small reddish-brown spot on the nape. Again, the rusty-coloured breast is edged with a black line.

Measurements :—

	Length.	Width.	Wing.	Tail.
	in.	in.	in.	in.
♂ . . .	9·2	20	6·56	2·5
♀ . . .	8·7	18·5	6·23	2·22

	Gape. in.	Tarsus. in.	Hind toe. in.
♂ . . .	0·9	1·8	0·8
♀ . . .	0·88	1·66	0·82

We occasionally met with this species in S.E. Mongolia, breeding on the salt-plains, sometimes at great distances from the water. It is very shy, even if with young; and on perceiving danger it runs a certain distance, and then suddenly stops to look back, and again begins to run. When pressed hard it takes to wing, flying very fast, but close to the ground, and very rarely for great distances.

214. *ÆGIALITES CURONICUS*, Besck. *Snek rechnoy.*

Breeds occasionally in S.E. Mongolia, in the neighbourhood of small rivers and mountain-streams. We found its nests in Ordos and Ala-shan, but did not meet with any birds in Kan-su and about Koko-nor. The first spring migrants arrived at Dalai-nor on the 9th of April.

This species is extremely rare about Lake Hanka.

215. *ÆGIALITES CANTIANUS*, Lath. *Snek primorsky.*

Was met with throughout Mongolia and about Koko-nor, usually in small flocks of from three to seven specimens, on the shores of saltwater lakes, where it probably breeds. In spring it appears in S.E. Mongolia and about Koko-nor in the end of March.

216. *GLAREOLA ORIENTALIS*, Leach. *Tirkushka vostochnaya.*

Gould, Birds of Australia, vi. pl. xxiii.

This eastern representative of our *G. pratincola* was found by us only in

the valley of the northern Hoang-ho bend, from the town of Baut as far as the western portion of Muni-ul. Here these birds occurred tolerably often, singly, in pairs, or small flocks. The birds were flying about the meadows for whole days, hunting for insects, which they principally did about dusk in the evenings.

The northern bend of the Hoang-ho forms the northern limit of the distribution of this species.

217. GRUS CINEREA, Bechst. *Juravl serey.*

In all the countries we traversed the Crane is only a migrant. Its migration takes place from the end of March until the middle of May; the autumnal migration occurs in September. In the middle of this month we noticed in Ala-shan passing flocks, which, when tired out, and not finding a suitable resting-place, settled down on the sand, in order to pass the night there and to proceed on their journey next morning.

In Kan-su we saw, in autumn as well as in spring, Cranes on their passage only once each season (*i. e.* on the 16th of September, 1872, and on the 20th of April, 1873), and in both cases at the same place, south of the river Tetunga. Our tent there was pitched at an absolute height of 10,600 feet; but these birds were flying at such an enormous altitude that they could hardly be seen. During the whole day one flock seemed to follow the other. At Koko-nor they arrived on the 17th of March.

We did not find *Grus cinerea* in the Ussuri-country.

218. GRUS NIGRICOLLIS, n. sp. *Juravl chernosheyney.* (Plate LV. ix.)

G. cinerea similis, sed occipite plumoso, rostro longiore, capite, colli dimidio superiore, remigibus omnibus caudaque nigris; vertice nudo rubro, pilis sparsis.

Measurements of a male—length 48", width 84"; wing 25"·3; tail 9"·3; culmen 4"·8; height of bill at the base 1"·32, its width 0"·92; tarsus 10"·2;



GRUS NICRICOLLIS PRZEW ♂

uncovered part of the knee 3''·8 ; middle toe without claw 3''·7, its claw 0''·78 ; hind toe without claw 0''·83, its claw 0''·3.

Culmen greenish horn-colour, lighter on the tip ; the feathered portion of the lower mandible extends 0''·3 further than the side-feathering on the upper mandible ; legs black ; iris golden yellow.

Male.—Head and upper part of the neck smoky black ; crown naked, with a rough red skin, covered with very few small hairy feathers, which cover rather thickly the forehead and lores ; there is a small white spot behind the eyes. The lower portion of the neck, the upper and under wing- and tail-coverts, and the whole body are of a pale ashy colour, lighter than in *Grus cinerea*. The inner webs of the large wing-coverts are brownish grey ; the larger shoulder-feathers are blackish and brownish grey. Wings are dull black ; the tertiaries and their coverts (all of which are black) are elongated, pointed at the end, branched at the points, and turned up and raised above the tail in a patch.

This Crane was found by us only at Koko-nor, in a few pairs, which arrived there on the 30th of March, and most likely remained to breed.

The voice of the present species is very pleasant, and much resembles that of "*G. leucogeranus*." I had not much opportunity of studying its habits ; for soon after its discovery we left Koko-nor, which forms the northern limit of its distribution.

219. GRUS LEUCAUCHEN, Temm.

Temm. Pl. Col. pl. ccccxlix.

About Dalay-nor and the town of Kalgan we met with a few of these Cranes, and consequently think that they do not go far into the interior of Asia, although they are common in Ussuri-country and in Manchuria.

About Lake Hanka *G. leucauchen* is more numerous than any other species of this genus, arriving there in the beginning of March, when the snow is still on the ground and the nights are frosty up to 20° C. The principal migration, however, takes place in the middle of March. Early in April, when the marshes are free from ice, they take up their position in pairs. During the breeding-season the male is very much attached to the female, and often gambols before her on the ground, and goes through all sorts of peculiar evolutions in the air; sometimes several pairs come together and go through these performances collectively, by jumping up, stooping down, flapping their wings, and bending their heads, &c.

The first young were taken by me about Hanka on the 19th of May.

[TO BE CONTINUED.]



J.G.Keulemans lith.

Hanhart imp.

PHAINOPTILA MELANOXANTHA, *Salvin* ♂ & ♀.

PHAINOPTILA MELANOXANTHA, *Salvin.*

BY MR. G. D. ROWLEY.

(Plate LXXIX.)

IN the 'Proceedings of the Zoological Society,' part ii. 1877, pp. 367, 368, we find :—

"Description of a New Genus and Species of Oscines from Costa Rica.

By OSBERT SALVIN, M.A., F.R.S.

[Received April 17, 1877.]

"The ornithology of Costa Rica has lately attracted much attention; and it might have been supposed that our knowledge of this subject was tolerably complete. During the past seventeen years many large collections of birds have been made in that Republic; and the results derived from their examination have been published by Dr. Cabanis* in Germany, and by Mr. Lawrence† in America; while several new species have been brought to notice by Mr. Sclater and myself‡ in this country.

"It appears, however, that the mountainous districts of Costa Rica have still attractions left for the naturalist, as will be manifest from the remarkable new form which I now proceed to describe.

* See Journ. für Ornith. 1860, pp. 321, 401; 1861, pp. 1, 81, 241.

† See Ann. Lyc. Nat. Hist. New York, 1868, p. 86.

‡ See P. Z. S. 1869, p. 416.

“PHAINOPTILA, gen. nov.*

“Rostrum debile, angustum, glabrum, valde aduncatum, maxillæ apice dentato: nares apertæ: setæ rictales breves. Alæ rotundatæ: remex primus longus, dimidium secundi æquans. $2.<3.<4.=5.$, 4. et 5. longissimi. Acrotarsi breves, integri, sicut in gen. *Turdus*. Ptilosis mollis sicut in gen. *Ampelidarum*.

Typus et species unica.

“PHAINOPTILA MELANOXANTHA, sp. n.

“Nitente nigra, pectore et abdominis lateribus cum crisso olivaceis, ventre medio ardesiaco: hypochondriis et dorso postico lætissime flavis: rostro et pedibus nigerrimis. Long. tota 9·0, alæ 4·0, caudæ 3·5, tarsi 1, dig. post. sine ungue ·5, rostri a rictu ·9.

“*Hab.* Costa Rica (*H. Rogers*).

“Mr. H. Rogers, who is now in Costa Rica collecting objects of natural history, shortly after his arrival in that country sent home a box, chiefly of insects, but with them four bird-skins, one of which is the remarkable individual which I exhibit to-night. That it belongs to an undescribed genus there can be little doubt; that it is a member of the family Ampelidæ is perhaps not so certain. The presence of a large first primary shows its position amongst the true Oscines; but the comparative narrowness of the gape, feeble bill, the longer and stouter tarsi than is usual in Ampelidæ, and the fact of the front of the tarsus being covered by a single scute suggest that the bird may prove to be an aberrant member of the family Turdidæ. The wing-formula is quite that of *Ptilogonys*, to which genus the glossy plumage and some of the characteristics of the coloration suggest an affinity; and these characters have induced me to place *Phainoptila* for the present near *Ptilogonys* † in the family Ampelidæ.”

* φαεινός, *splendens*, et πτίλον, *pluma*.

† *Ptilogonys* (Genus 3, Fam. 11. *Ampelidæ*, ‘Nomenclator Avium Neotropicalium,’ Sclater & Salvin, p. 13), consisting of two species—(1) *cinereus*, Sw., ex Mexico et Guatemala; (2) *caudatus*, Cab., ex Costa Rica. This latter is figured in the ‘Exotic Ornithology,’ by the above authors, plate vi. p. 11. *Cinereus* is the type (*cf.* Baird, Brewer, and Ridgway, ‘American Birds,’ vol. i. pp. 404, 405).

Mr. A. Boucard, who has just returned from Costa Rica, has kindly provided me with the following notes on this species.

These birds travel in pairs, and fly from one tree to another near the streams, eating insects of all descriptions. He killed several; but says they are excessively rare, and are new to the Indians. It is very difficult to detect them in the forest, and they are very wild. When once you have shot the male it is easy to get the female, and *vice versa*. Not more than one pair is seen at a time; and if you obtain this in a day's hunting you may be very well satisfied.

Those figured (now in my collection) are male and female, shot by Mr. Boucard himself at Navarro, Costa Rica. He skinned them well, and they are in fine condition.

Navarro is only a small place where a few Indians live, and is situated near the chief town (Cartago), at an elevation of 4000 feet, under the mountains of La Candelaria, halfway between the Atlantic and Pacific. The aspect of the country is very fine, nearly tropical, although a species of oak (called "Roble" in the country) is to be found in the vicinity of Navarro.

Mr. Boucard never heard the cry, and thinks the eyes were dark brown, nearly black. The sexes were proved by dissection and marked directly—which fact prevents any mistake between the female and young male in immature plumage.

With reference to the partiality of this species for oaks, the following appears in 'Exotic Ornithology,' by Messrs. Sclater and Salvin, p. 12:—

"Mr. Salvin has frequently met with [*Ptilogonys*] *cinereus* in the high-land districts of Guatemala, where it is usually found, in the zone of ever-green oaks, at an elevation of from 4500 to 7000 feet above the sea-level."

I mention this because Mr. Salvin suggests an affinity to *Ptilogonys*.

Mr. H. Rogers has sent over the male, and it is described by Mr. Salvin. The sexes are the same size; but in the female the throat is grey, inclining to yellow instead of black, and the back is yellowish mixed with grey, which in the male is black; and the bright yellow patch on the rump is absent in the female. While the tail-feathers in the male are quite black, in the female they are much lighter and are marked with yellow on one edge. The wing-feathers in the male are also quite black; in the female they are lighter, and marked with yellow on their outer edge.

The total length is about $8\frac{1}{4}$ inches. The birds in the Plate were shot May 1877.

The young male is like the adult female, of which I have one in my collection killed at Navarro in May 1877. This specimen is in a very interesting stage. The black feathers of the throat are just making their appearance, and the yellow patch on the rump is faintly indicated. The tail is exactly like that of the female, but would of course turn to bright black in a very short time.

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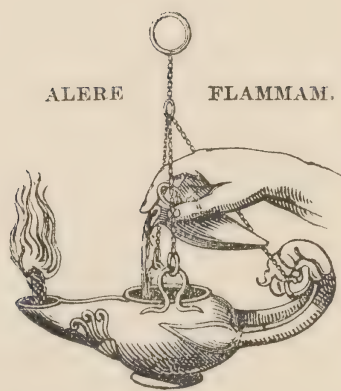
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PART V.]

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PART VI.]

[JANUARY 1877.]

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[OCTOBER 1877.]

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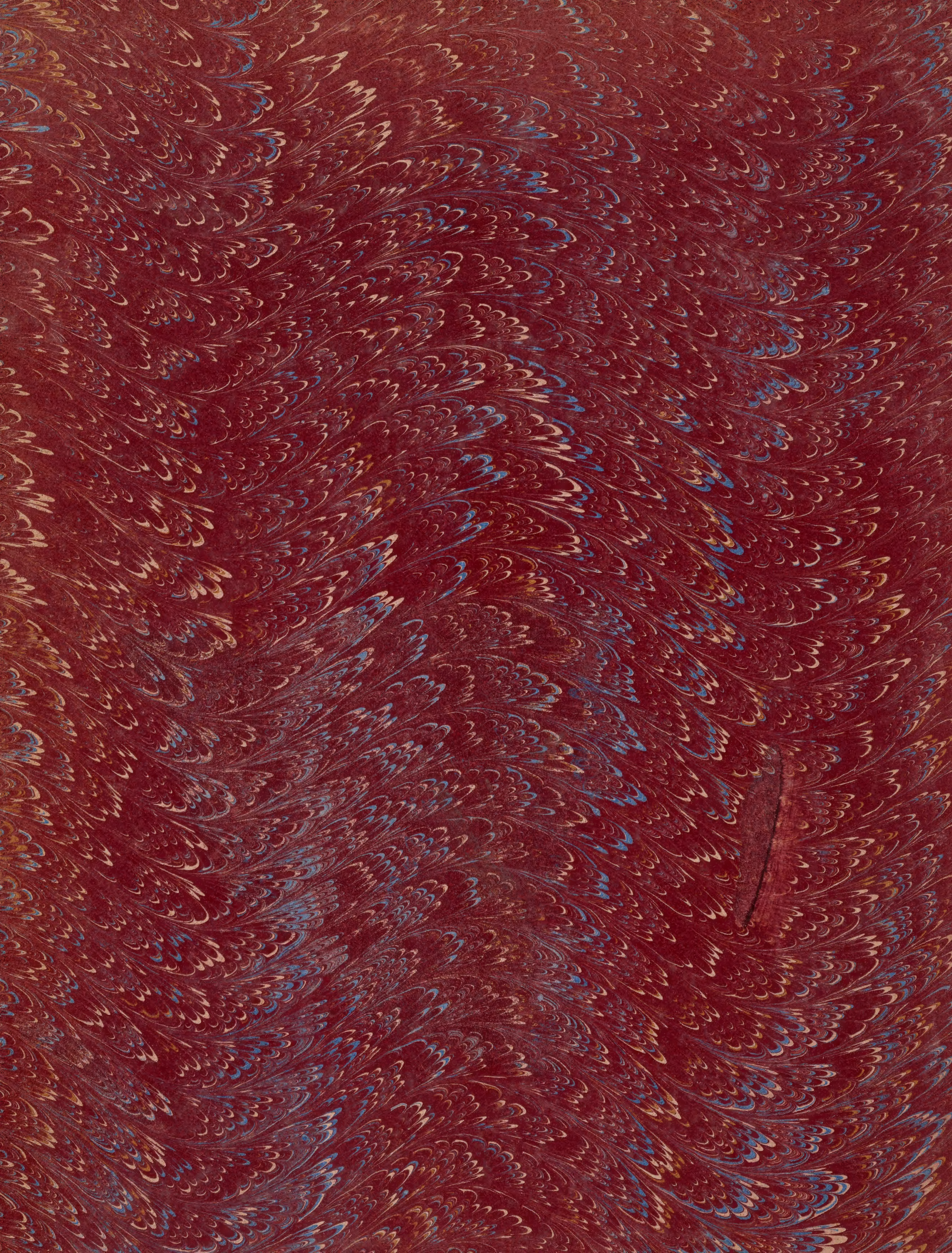
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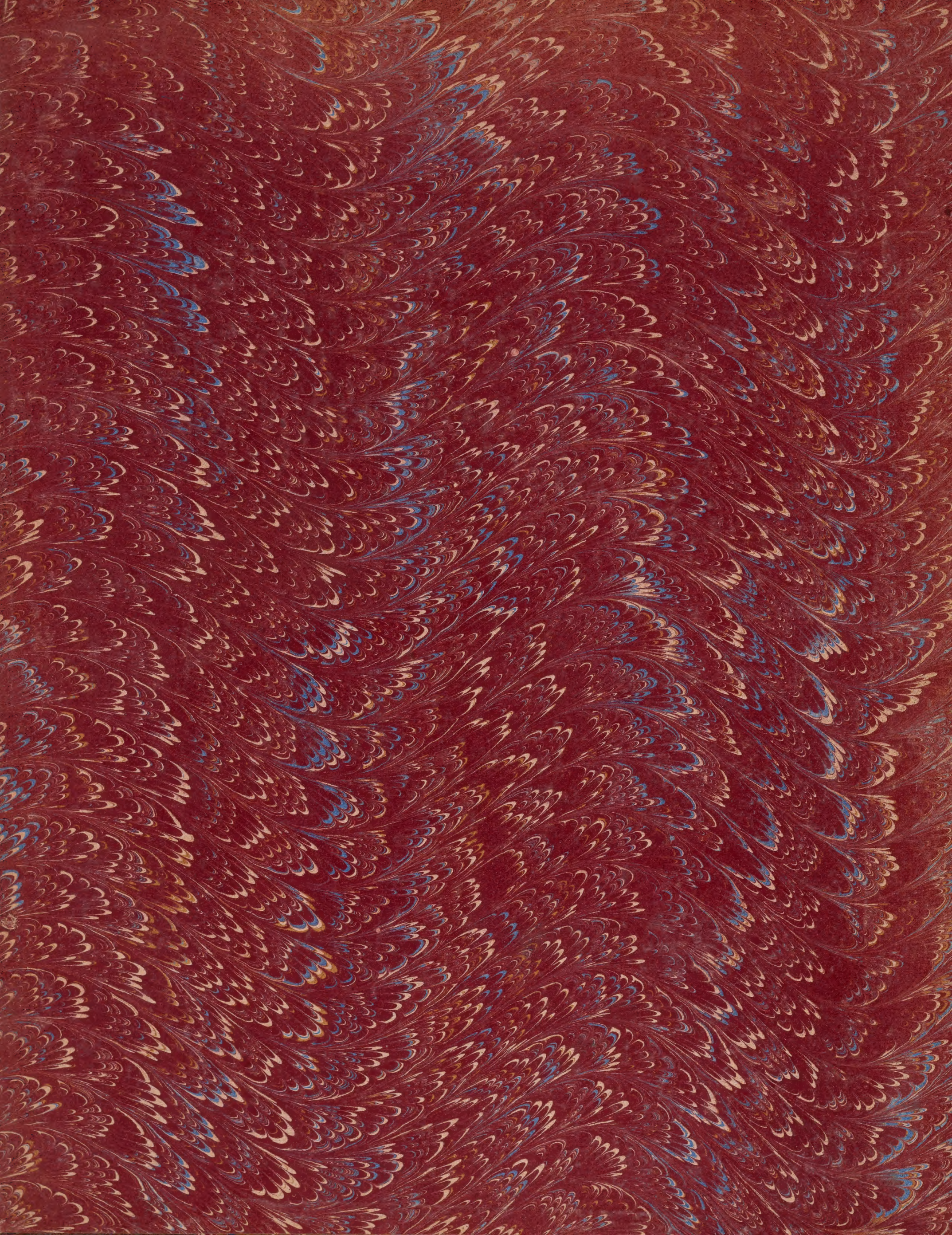
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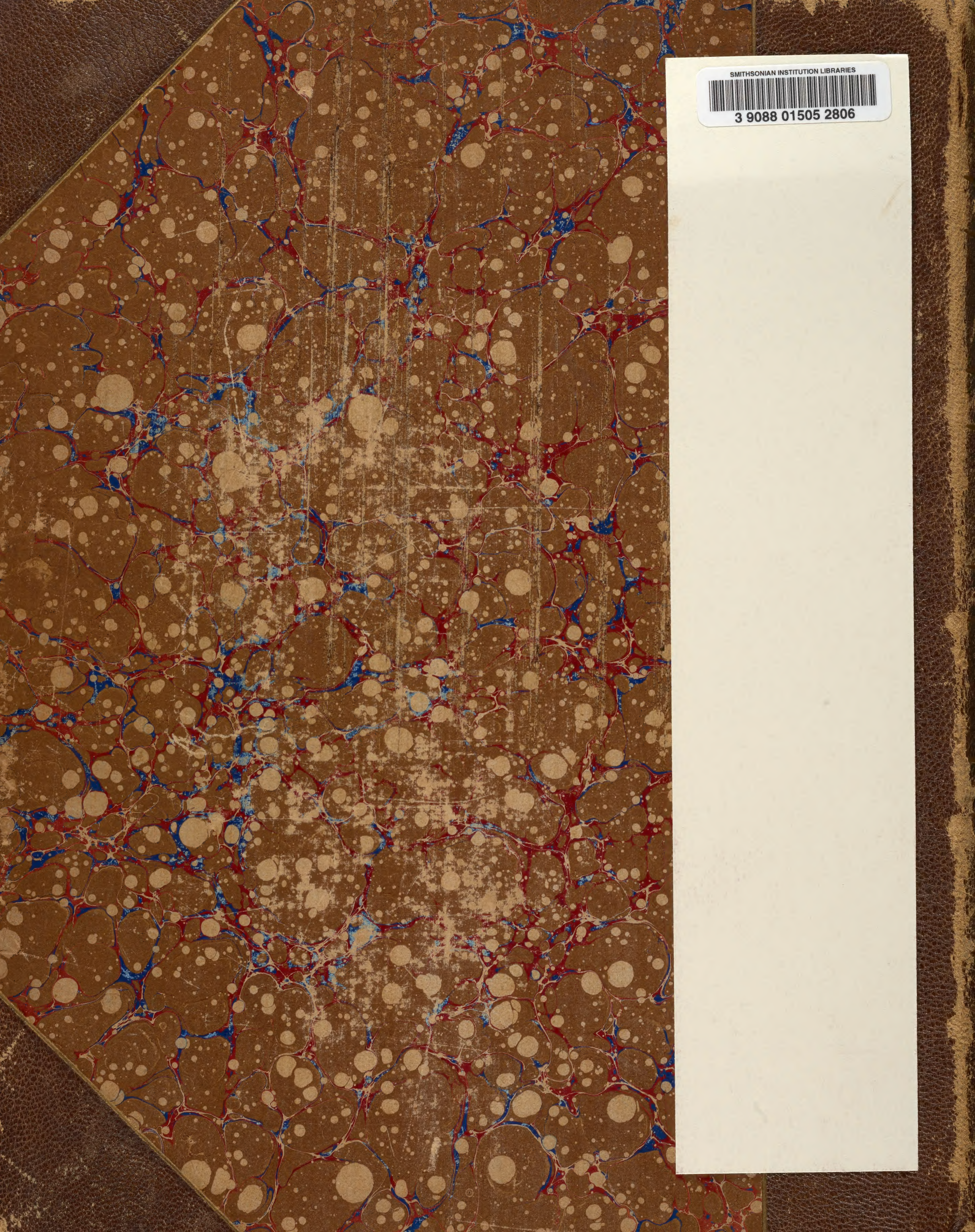
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